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In This Issue

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IN THIS ISSUE

"From a NavCad's Diary" is based on a story appearing in ATU 307's safety bulletin "CHOCKTALKS," Vol. 1, No. 20.

"Merry Christmas, Joe,

. . . and a happy 0400 launch to you!" The SDO was only trying to make friendly Christmas Eve conversation, but somehow Joe's thoughts were far from the next day's launch. Christmas Day. They normally would have been in port for Christmas, but the Old Man himself had put out the word—they had to be over 1000 miles from that nice liberty port by the dawn of the day after Christmas. Joe only had a hint of the reason, but the scuttlebut was plentiful and varied.

It didn't matter really, thought Joe. As long as he couldn't be with Mrs. Joe and the li'l troops, he might as well be flying. After all, that's what he was out here for. And maybe that was the best place to be on a Christmas dawn, up where you have the sunrise all to yourself. A guy can do some deep thinking at times like that, long as he doesn't close his eyes and forget that he's flying an umpty-ton mucho-thrust iron bird that gulps the JP-4 faster than egg nog disappears at a Christmas party.

Christmas party — Well, it would have been a humdinger if it had come off. And those orphanage kids . . . wonder how the nuns go about telling them that the big American aircraft carrier just couldn't stay around for the party they were invited to? The wardroom movie was "White Christmas." Joe had seen it once, probably would have sat through

continued from preceding page.

it again if he weren't on the early launch. Better to grab some early shut-eye and catch the movie tomorrow.

The launch was routine . . . no moon, clear and cold. Plenty of stars—one dead ahead was much brighter than all the rest . . . or was that just what everyone saw on Christmas morning because they expected it? Joe thought back to celestial navigation at preflight and the constellation was only a vague memory. No time for that now, switch to channel 15, climb on 090 to 35,000, keep her on climb schedule . . . and there was the first glimmer of dawn in the east. Dawn of Christmas Day. Give them a happy day Lord— Mom and Pop will be around so Mrs. Joe won't get feeling too lonely, and Pop will set up the new trains for li'l Joe, and li'l JoAnne— "Roger Hot Plate, this is Hamfat Two loud and clear, climbing on course, passing through Angels 25."

Things get boring after a while. Sure there are things to do, but a guy gets bored doing them. Ho-hum, hour to go. No one up here but me. And the radio chatter was mercifully sparse, seemed like half an hour since anyone had interrupted the silence. The day was light now, still CAVU back aft, solid cloud deck at about 30,000 up ahead. Funny how those clouds looked like land sometimes. With just a little imagination you could see valleys, plateaus, mountains. . . .

And there it was, just like he'd always heard. Big wide runway, biggest he'd ever seen. Clear all around, left break for runway 9. Couldn't miss this place. No obstructions for miles around, they sure laid this one out for aviators. In the groove and a green light— wonder if they use it only on Christmas day? No wheel watch— yep, they're down 'n locked— easy turn into final . . . *whoa* there Betsy, don't you start sinking out on me, I . . . *Scronch* . . . we're on the deck Betsy, roll out straight for ole Joe . . .

Joe was too busy to reflect on his near miss right then, but doggone if he wasn't headed straight for the boondocks short of the duty. Seemed like one minute he was sinking like a rock, hauled her nose up and immediately realized he shouldn't have, and before he could recover he was on the deck. Just like someone had pushed an extra thousand feet of runway under him at the last moment.

The lone man on the apron didn't seem to know too much about jets— Joe had to wave him out of the way violently. "Silly clod, been working around these *Spads* too long. Almost spoiled the smoothest Christmas day flight I ever had."

Now there was a contrast. Smoothest, nicest longest runway he'd ever set down on, big wide taxiways, but not hangar one. Just a wooden hut that needed a coat of paint. And those crates—he'd seen Paul Mantz fly one out in L.A. years ago, but it was painted like a show plane. These actually looked like they had just come in from recco over Verdun or Metz. Those small patches on the fabric, almost in a straight line— no, these guys didn't fly for the movies, those holes were legit. Wooden props and wire wheels, Lewis gun on top of the wing, and that hat-in-the-ring emblem he'd painted on many a balsa flying model in earlier days.

The Colonel came out of the hut during the rundown. Sure, thought Joe, these guys never had dry cleaning, that's why those blouses always looked baggy and unpressed. The mustache was strictly class though.

"Come in Joe, we've been expecting you. Sorry we don't have the right kind of facilities here, but we learned long ago to get along on a minimum of frills."

The hut contained some simple but comfortable furniture, centered by a pot-bellied stove upon which a coffee pot hissed in a friendly familiar way. The conversation in the room continued as though Joe had always been there, although some of it was strange to him. The man in the corner, the one with the large scar on his cheek, had a very strong accent.

"Is that . . . .?" "Yes Joe, that's the Baron. Are you surprised to see him here? We're beyond all that you know. The Baron plays bridge every day with Ellyson, Frank Luke, and Mitsuroki— Mits came in here about 12 years ago in a *Zero* so full of holes we wondered how it held together. He's been taking fencing lessons from the Baron too. Oh you'll see everyone here. We closed the bar today, because of Christmas, but on other days they all gather around and tell the tallest, hairiest tales I've ever heard. You've never seen a bar like it.

"Joe, in one afternoon at that bar you'd hear first-hand accounts of air battles over the Rhone, how the ME-109 performed in Spain, how it felt to make the first landing on the Pennsylvania, and we even have an Aussie who claims he looped a *Dakota* while towing a glider!

"And you'd be surprised Joe, at what hindsight would have done for many of these pilots *if they'd been able to apply it as foresight.*

"Merry Christmas, Joe,

Continued

Take that fellow over there, in the leather jacket and scarf— he probably would never have diverted here if he hadn't tried to tickle the goal posts back in his home town in an F4B. That one over by the stove was a big help to many of us once. He had no wind tunnel tests or big thick handbooks, but he went out and learned for all of us that a Gnome-Rhone rotary had more torque than he could cope with."

"Colonel, the lessons these men learned would sure be a best seller back at Hot Plate if they could be bound under one cover. Have you ever tried writing up and passing their experiences along to other pilots back there?"

The Colonel smiled sadly. "Our communications are pretty one-way, Joe. But don't you think every one of us hasn't wished he could do just that. You leave a kid brother or a buddy back there and you sure wish to heck you could reach back and whisper some life-saving advice in his ear."

He scanned the horizon thoughtfully. "What hurts us almost as badly though, is to see inbounds week after week on pilots who have filed for here and never even *tried* to make their alternate! He shook his head slowly. "There are so few new reasons, and so *blasted* many old ones, Joe—poor flight planning, failure to keep flying speed— the old stall/spin, failure to keep alert for other aircraft . . ."

"I know what you mean, Colonel," said Joe, "and things like going IFR on a VFR clearance, and boring on through when a 180 would have cancelled their change-of-station orders. Or living it up the night before a big hop."

"Or even a little one, Joe," said the Colonel as he reached for a thick mug and poured himself some coffee, "it's all so common-sense, and everyone who checks in here knows it even before he has his first cup of coffee. It's not just pilots that need to use common sense. Everyone connected with aviation can apply headwork and turn a potentially dangerous situation into a no-situation."

Take the men who design your airplanes for example— they've got all our past experience to be guided by, experience that our people didn't have, and they have human design engineers and motion study analysts, and yet your Mr. Murphy's law is violated in practically every airplane shop in the world. You'd be shocked if I told you how long ago Mr. Murphy could have published his law!"

"I can see how Murphys can crop up in our planes Colonel, they're so full of complex machinery, but I'm surprised to hear you had them too. Your mechs didn't have bundles of wires and hydraulic plumbing to figure out, I should think their job was easy."

"Not quite Joe, the old-time mechs had less plumbing to worry about, that's true, but they also didn't have today's technical training or the handbooks to be guided by. They had to learn and improvise right along with us, and on the planes that we flew. Do you know how I got ordered here? My mech was one of the best, he raced a car at Indianapolis in 1912, but he learned from MY flight that maybe he was tightening the plugs too much. I lost power but good right after one of the Baron's wingmen got on my tail— nearly all my plugs were cracked, and Oberleutnant Muller got to draw another *Spad* on the side of his triplane. He got here later, and checked me out in his machine— we play cribbage most every day."

The Colonel excused himself after a whispered message from an orderly. Joe only heard part of it— something about The Boss wanting to know why no inbound on a Navy fighter pilot named Joe.

As he refilled his cup from the still-hissing pot on the stove, Joe began to see a lot of things in a different light. An Ensign waited his turn at the pot . . . Joe was sure he had seen the face somewhere, not in person but in some aviation book. Chevalier? Stolz? It was one of them, he was sure. No doubt about the distinguished looking gentleman seated beneath the picture of a Z-ship though, he'd seen the Admiral's picture in BuAer.

What a wealth of things we— I mean they, could learn from these people, thought Joe. Whether intentionally or unintentionally, every one of them has contributed something to aviation, even if it was in a negative way, like the goal-post buzzer.

If only I could take all their experiences, all

they learned by experimentation, by trial and error, by calculated risks and by sheer foolhardiness.

I'd write them all down, grind up the paper into powder, and drop a pinch into the coffee of every pilot, every mech, tower operator, crewman, rigger, controller and design engineer and everyone else who has anything to do with airplanes. In fact, I'd save a heaping handful for that young jaygee in our outfit who played "scare the wheel-watch" back at Cecil. I wonder how many pilots have to take foolish, un-calculated risks and wind up here before just ONE pilot gets jolted into realizing that he might be next?"

Joe ruminated on the vastness of this golden information that was denied to those who could best use it. He wasn't very conscious of his surroundings except for several times when he heard people say, ". . . if I could, I'd never do THAT again!" Yes, thought Joe, if I could there's lot's of things I'd never do again too. Like the time I was rushed into taking off before plugging in my oxygen hose. If my wingman hadn't detected my grogginess and confusion and had me check, I'd have been here on Groundhog Day instead of Christmas.

Walking out along the line of planes gave Joe a tingling chill. *Spads* a-plenty were lined up in the front row, but stretching as far as the eye could see were *Nieuports, Jennies, Fokkers, Stukas, Capronis,* many he could name only from adolescent days of reading "Flying Aces," and many that he himself had flown in his brief career. Far down the ramp, between a *Seamaster* and an AJ, a man with a sly, infectious grin and a ten-gallon hat twirled a lariat beside a Lockheed *Orion* on floats.

Joe wasn't surprised to find his own machine turning up and ready, it just seemed natural. That mech who left the cockpit just as he got there— wish he'd stuck around a moment longer. Joe was sure he recognized Ryan, AD2,

but no, Ryan had walked into a prop only a few days before. Fuel, oxygen (hook it up NOW), utility pressure, emergency air, everything reads like the book. What was missing here?? . . . of course, no chatter on the air, just a faint "MC" from the hayrake. Got to be careful not to singe those lumber and fabric birds . . . there, now we're clear.

At the taxiway intersection there was no choice but to go onto the grass when the *Connie* came taxiing along full bore. Faces peered intently at him through the *Connie's* windows, couple of youngsters among them.

Runway clear, TPT normal, and somehow the clearance seemed to be given even though he hadn't heard it. Climb out on 090 . . . funny how these clouds look like land sometimes . . . with just a little imagination you could see valleys, plateaus, mountains, and . . . "Hamfat Two, Hot Plate, position and state . . ."

"Hot Plate, Hot Plate, this is Hamfat Two, stand by one, fuel 5200.

Now what in the whacky world is going on? Let's see, 0420 . . . but I was climbing passing through 25 at 0415???? and now I'm down to 10 . . . Hot Plate, Hot Plate, Hamfat Two heading 270, posit uncertain."

A short time later, Joe sat in the readyroom. The LSO came in and slapped him on the back. "Hairy, huh, Joe—don't get all shook up. You made it and Santa Claus did, too!"

Joe stared at him vacantly, "Santa Claus?"

"Yeah," Paddles grinned. "Change of orders. The old man just announced it. Back to port and the little kiddies and jingle bells and all that. Then me for the cup that cheers, Joe— how about you?"

"Count me out this time. I've got some— some writing to do." Paddles looked at him blankly and headed topside.

Joe's plane captain came in then. "Geez Mr. Joe, I'm sure glad to see you back safe. Those two waveoffs had me worried, but when you picked up the last wire on your third pass I near flipped. We practically had to carry you down to sickbay. And from now on *I'll* check your oxygen hose too— no pilot of mine is gonna get that hypoxia stuff while I can do something about it." He bent down toward Joe's ear to say something private. "Look Mr. Joe, I don't like to be a spoilsport, but if you're gonna pull liberty ashore while flying you oughta cut me in so I can hide the evidence. You know, I pulled a whole handful of grass from around your port oleo? Don't worry, Mr. Joe, sit right still, I threw it over the side. Hey, have you heard we're goin' back to port? Merry Christmas, Mr. Joe!" ●

truth and consequences

A DIGEST
OF SIGNIFICANT
AIRCRAFT ACCIDENTS

THE HOT BREAK — After an hour and 40 minutes of a section tactics hop in F9F-6s, the leader notified his wingman that he was returning to base. The wingman radioed that he preferred to remain airborne for a short while longer in order to log two hours. The flight leader then proceeded singly to base and landed.

The wingman was a pilot in an organized reserve squadron and this was to be his last flight in the area. He was going to a new job with an aviation company as an engineer and, according to his associates, was highly elated over it. His family stated he was more keyed-up over the development than any event in recent years.

By the time the leader landed, secured his plane, and walked into the line shack, the wingman had returned to the local area and was cleared to the traffic pattern by the tower. He reported on the initial for break at a normal altitude (1200 feet) but his airspeed appeared to be somewhat slower than normal for a *Cougar*, estimated by various witnesses as 200 knots or less.

At the break the aircraft rolled into a vertical turn which went well past a 90-degree bank. Then it started an immediate recovery from the roll. Simultaneously, the nose was seen to drop. "Looking up," said one pilot witness, "I saw an F9F-6 at about 90 degrees to the runway in a 60- to 75-degree bank and approximately 45 degrees nose-down."

The pilot succeeded in leveling the wings and completed about 130 degrees of turn but the plane continued to lose altitude rapidly and was mushing with full, or near full power on. It struck the ground in a flat, wings level attitude and began burning and breaking up while sliding to a stop in marshy ground within the field boundaries.

In the subsequent investigation the aircraft's history and the wreckage was thoroughly examined and no indication of material failure or malfunction was revealed. However investi-

gation into the pilot's background did produce some significant information.

During the pilot's tour of active duty he acquired 850 hours of flight time including 266 hours in jets. In nearly a year with the reserve squadron he had checked out in the F9F-6 and 7, and had flown them for a total of 49 hours. Though it could not be verified, reliable sources indicated that while on active duty he was grounded for a short period by his C.O. for executing excessively sharp breaks.

Further discussion with pilots who were in the same active duty squadron brought out the fact that he was given secondary pilot error for poor judgment in leading a four-plane division takeoff from a strange field with a 200-foot wide runway. A major accident resulted when one plane became caught in jet wash and crashed. No mention of this was found in his log book as required by OpNav Instruction.

In another instance a senior member of his active duty squadron "admonished" him for executing a break similar to the one which caused his death. In this case he was leading a relatively inexperienced wingman and witnesses stated the two planes were out of sight behind trees when recovery was accomplished.

While in the reserve squadron he and a fellow reserve pilot had at one time agreed to a "hot break" at the completion of a flight. "I noticed he lost a few hundred feet," said the accompanying pilot, "and he immediately called, 'waveoff.' He executed a go around and made a normal break and landing. Debriefing in the readyroom, I questioned the manuever and he replied he 'sort of stalled a little' so he decided to go around. After the debriefing he stated that once during an overseas deployment he stalled an FJ-2 and recovered at about three or four hundred feet."

It was the opinion of the board that the two psychological factors of his elation over his future employment plus the fact that this was his last flight with the squadron, coupled with his "affinity for radical breaks," caused him to execute a break to such an extreme attitude that a high-speed stall resulted at a time when he had insufficient altitude to effect a recovery.

See "Tangle with the Angle," January 1957 APPROACH—*Ed.*

In the past the pilot had demonstrated a weakness for a "hot break."

TIME OUT — In the personal opinion of the squadron commanding officer," _____ was a much better than average pilot. He had been involved in several minor emergency situations not of his own making and had met them with proper, deliberate action. . . . He was considered one of the best qualified junior pilots attached to the command . . . (yet he) suffered the fatal consequences of a few seconds of bad judgment, or inattention."

The pilot in question had a total of 588 hours with 86 hours in the A4D-1. On the day of the accident he attended a discussion of A4D emergency procedures, practice flameout approach, "backside of the power curve," and approaches to a stall. In the afternoon he was scheduled for a GCA practice flight and about one hour before takeoff time, he met the other pilot assigned to the GCA hop.

The second pilot had about the same amount of total and A4D time. "We chatted informally about the flight as we dressed," he said. "Since we were both familiar with the GCA procedures, other topics were discussed as well as those pertaining to the coming flight. Briefing subjects covered included radio procedures, our flight course before we picked up our GCA channel and who would fly the first passes. Since (the other pilot) had flown three passes recently he suggested that I take the first five and he take the two at the end of the period.

"The flight path took us out over the water southeast of town with (the other pilot) informing GCA of this fact. He also corrected me when I told GCA that I was over the town. This led me to believe that he was very alert to his duties as chase pilot and was definitely paying attention to the pattern. The landing cockpit check was completed on the cross leg and immediately afterwards I was told to take up my final heading."

truth and consequences

(continued)

Squadron procedure was to use full flaps on GCA final and the pilot under the hood followed this rule. The chase pilot only had half flaps extended.

When the flight turned on final approach during the first approach, the final controller instructed the chase plane to drop back. After a short time the final controller told the chase plane that his position was good.

Then the chase plane began to close up. The GCA outside observer stated that the chase plane was fishtailing on the final approach. A copilot in an S2F who was a little above and to the side of the A4D's reported he saw the chase plane flying close to the lead aircraft. He estimated the horizontal separation to be slight. Then he observed the chase plane to nose up abruptly, "at least five degrees nose-up."

At one and a half miles out the lead plane had dropped rapidly below the glide path and at 50 feet below, was instructed to take a waveoff. The elevation tracker estimated that the lead aircraft dropped further, to about 125 feet below the guide path, before the pip began to rise on his scope. Afterwards he stated that during the approach the two pips merged and then become one pip. After the rapid descent below glide path he saw a smaller pip rise on his scope.

After the S2F copilot saw the chase plane nose up, he looked away momentarily. When he next looked toward the aircraft, the chase plane was colliding with the water a little over one mile off the approach end of the runway. The pilot was recovered but died later in the hospital.

From an examination of the wreckage, the accident board determined that the speed brakes were fully extended and that flaps were one-half down. The horizontal stabilizer setting was 5½ degrees nose-up, which corresponds with the half flap setting and aircraft weight.

In reconstructing the events prior to the accident the board found that the lead pilot extended full flaps as he approached the glide path. This was in accordance with squadron procedures. Apparently the chase pilot forgot to extend full flaps.

While flying down the glide path the chase pilot probably attempted to maintain separation from the lead aircraft by fishtailing without reducing throttle. The difference in flap settings between the two aircraft caused him to overrun however, until he was flying within two plane-widths of the lead aircraft and at approximately the same altitude. At this time the lead pilot was told to go contact. Previous to this the lead pilot said he had "unknowingly loosened the friction lock to a position looser than usual so that I would have a finer control over my power.

"The moment I took my hand from the throttle to remove the hood the throttle came back, forcing me to drop the hood and apply full throttle. I dropped rapidly below glide path but was contact and correcting so I did not pay too much attention to this fact. The next moment after going to 100 percent, I looked up and noticed that I had dropped my hood squarely over all my instruments and in trying to remedy this situation the throttle was again allowed to come back somewhat. I immediately added full power and this time locked the friction full tight. After gaining comfortable altitude and attitude I removed the hood from the panel. At no time did I become slow enough for the plane to reach the stall shudder . . ."

The board felt that with the inadvertent reduction of throttle by the lead aircraft, and the consequent slowing and loss of altitude, the chase pilot probably continued to overrun from an al-

ready much too close position. With an S2F turning base approximately 500 feet laterally from him, the proximity of the water, and the prospect of the lead aircraft waving off to the right directly across his path (it was a right-hand practice pattern with the chase pilot flying a right wing position), it was felt that the chase pilot extended his speed brakes and probably reduced throttle in order to slow up and prevent further overrunning.

At the same time he rotated his nose up. With no excess speed the aircraft did not climb and only more drag was produced by the action. The plane stalled and mushed, wings-level, into the water.

The accident board noted that from an altitude of 340 feet "there was no possibility of recovery from a stall. At 15,000 feet with a clean aircraft, a minimum of 700 to 800 feet is required to recover from a stall."

RIDES IT OUT—During a low-altitude rendezvous after takeoff, the pilot of an F3H-2N experienced what at first seemed to be a compressor stall. He was at an altitude where squadron doctrine allows a pilot's choice. One conclusion of the accident board, concerning his actions during the emergency, is significant: The pilot, when forced into a split-second decision, did everything as nearly correct as is deemed humanly possible in the short time involved.

"His decision to fly the aircraft into the ground, rather than mush in at a low airspeed with the accompanying high sink rate, undoubtedly saved his life."

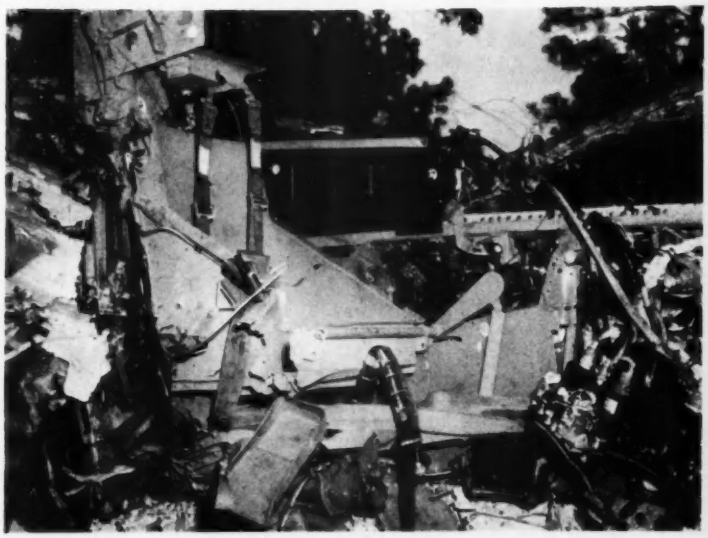
Here is the pilot's statement concerning the ride: "Recalling recommended procedures for coming out of a stall, I immediately went to IDLE rpm. This did not alleviate the stall. The noise and vibration were still there. I looked at my altimeter and it read in the neighborhood of 1100 to 1200 feet above sea level (the field is 80 feet above MSL). I elected not to eject, thinking that ditching would be surer and safer—that old feeling that the cockpit is such a safe comfortable place, and besides, the line of thought went, 'this engine may come out of the stall . . . yet!'

"I started to make a radio transmission but remembered I was on Channel 7. To make sure someone heard me, I went to Guard and said something like 'I've got an engine stall, looks like I'm going to ride it in.' I then began to activate my emergency pneumatic handles; ram-air pump, slats, and canopy OPEN.

"I checked both shoulder straps with my left hand for tightness. . . . I glanced at the airspeed indicator and it was in the neighborhood of 150 knots. From here on in, I made a determined effort to hold flying speed, wings level and bore straight ahead. I started a quick prayer and realized this was it. I remember the first couple of jolts, but after that it seemed like a big wave was breaking over me and I just relaxed.

"When I opened my eyes and realized I was still in one piece, I was startled to see that *I* was the *front* of the aircraft. But reacting to impulse to get away from wreckage as soon as possible in case of fire, I opened my seat belt, unstrapped my parachute, jumped down and began running forward into the piney woods and brush . . ." ●

When the dust and debris settled the pilot was startled to find that he was the front of the airplane.



HEADMOUSE

ON GUARD

Numerous instances of Guard channel use for routine communications have been published in APPROACH. *Here are two interesting comments and suggestions on this safety problem!*

PRACTICE DISCIPLINE?

THE RADIO Facility Charts specify that the UHF-equipped aircraft will maintain a continuous guard on 243.0 Mc. As is well known, this is done in military aircraft by the peculiar construction of radios, such as the ARC-27, which incorporates an extra receiver for the "Guard" channel.

As a result, any station or aircraft has available a frequency on which the operator or pilot can call any other with a reasonable surety of being heard. They do, and they are; heard so well in fact, that they effectively jam the channel and other listeners secure the Guard function.

Either situation is patently unsatisfactory. The obvious result is that if you need the frequency, there may be no one there to hear you if you can penetrate the clutter on the channel. I do not think that the Navy's skirts are entirely clean in the matter, but through both firm supervision and what I hope is better training, improper use of this frequency by Naval personnel in this area is virtually negligible. Positive indentification of the offenders has been made through their call signs, through reliable UHF/DF fixes, and circumstantial evidence has frequently pointed to the approximate identity in other cases.

Certain offenses and offenders have been repeatedly noted. Among these are: A certain GCA which does an extensive amount of controlling on Guard in plainly non-emergency situation; Two non-Navy towers which handle extensive amounts of their traffic on guard (ATC clearances, taxi and takeoff instructions. . . .); Two GCI stations which invariably initiate contact with aircraft penetrating the ADIZ on guard, rather than await a call on the assigned frequency.

All of the above, and several others, perform excessive and unnecessary testing on Guard. There is an operator at one station who supplements his repeated long and short counts with whistling and humming.

The one class of offender which upsets me the most is the pilots who carry on long, unauthorized conversations on Guard, not using call signs. Typical is the following conversation overheard on 243.0 Mc.

"Sam, what does your compass read?"

"Mine reads 236, what does yours say?"

"Mine is 234. Wonder why they don't match?"

They went on in the same general vein for several minutes and the conclusions I drew were unflattering. They apparently did not know their own unit channel, the use of a frequency card or the precepts of radio discipline, but knew nothing of compass

deviation as well!

The best and most obvious solution is a simple one. That is of course, self discipline. Tower operators and other ground personnel who violate the channel are readily detected and corrected. It is the pilots who are the worst offenders, and we are the only ones, in most cases, who can correct ourselves. It is up to us. We can either practice a little discipline, or we can go on as we have and just take our chances.

I intend to stay off Guard myself, and to file a report on every violation I hear. I encourage everyone to do the same, and hope to be rewarded by beautiful silence on the circuit.

REVISE & COORDINATE FREQS

LAST APRIL I noted an Anymouse Report concerning the use of Guard frequency as a common channel. I am in a position to see all ends of the Guard Frequency situation as I am an Organized Marine Reserve pilot and also work for the CAA in a combined communication station/-tower. Thus I have a suggestion that might be useful.

As I see it, there are just too many aircraft flying in close proximity to one another trying at the same time to contact towers and communication stations.

My suggestion is this: Each tower and ATCS within an area have their own frequencies on VHF and LF so as not to interfere with each other. If the aircraft is equipped with Omni the pilot could tune to the VHF tower or ATCS frequency and if equipped only with the standard ADF, tune to the LF frequency.

In this way the pilot could turn his UHF volume control down low enough so he could see if anyone else was transmitting to the same facility at the same time. He should already be tuned to LF or VHF to get an idea of local traffic. He would receive his landing instructions from the tower on one of these two frequencies. The frequency on which the reply from the tower is expected should be specified however. The tower would very seldom need to transmit on UHF, except where the pilot has no other means of receiving.

Even more time and frequency consuming are flights on IFR clearances which necessitate position reports, and a bigger evil, that of change in clearances or changes in flight plans. Since all aircraft "home" on a low frequency range or a VHF omnirange, at least half the battle would be won if pilots transmitted on 255.4 Mc and received on either the omni or LF range. After initial contact the pilot could cut his UHF receiver volume down and listen on his other equipment.

Pilots should realize that their transmissions to the station below them have less chance of being blocked out by other aircraft than do the station's transmissions to the aircraft. At altitude the aircraft will generally pick up many stations and many aircraft. The station on the ground will pick up only a few of the many aircraft, and seldom, if ever, will pick up another ground station.

I know whereof I speak, as I have flown cross-country, homed in on a station and gotten passage, promptly turned down the ADF volume, turned up the 255.4 volume, and tried to establish contact with the ground. I should have reversed the procedure. That is my policy now and since I am working with it day after day I can see how much more efficiently I can get position reports in.

Another use of the VHF and LF voice facilities is the fact scheduled weather broadcasts are made at 15 and 45 minutes past each hour. Time after time, our broadcasts are broken into by aircraft giving a position report and at the same time requesting weather with altimeter settings for stations that are being or would be given on the scheduled weather broadcast had the pilot just turned up the receiver and listened for it. Don't misunderstand me on this point. Our job is to provide as much service to the pilot as is possible. My main interest is to provide it more efficiently and expeditiously to all concerned.

I think the preceding discussion is a practical solution and can be implemented without additional strain on any pilot or equipment. It should keep unnecessary chatter off Guard and keep it open for what it is intended for. ●

The purpose of Anymouse Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hairy or unsafe flight experiences. As the name indicates these reports need not be signed. Forms for writing Anymouse Reports and mailing envelopes are available in readyrooms and line shacks. All reports are considered for appropriate action.

BUSY BEES

"IT WAS one of those beautiful spring mornings with the birds singing and the bees buzzing. This intrepid aviator felt it was a good day to log some easy flying time in a P4Y.

"During takeoff, at about 80 knots, I eased the nose off and shortly after indicating 100 knots the airplane flew itself gently off the ground. Climbing out, with the gear coming up and at over 200 feet altitude, I started reducing power. Suddenly I noticed the airspeed was 115 knots and dropping slowly. I left takeoff power on and flattened the climb to level flight. Adding to my worries was the fact I was crossing over the admiral's quarters at 300 feet with takeoff power rattling the windows.

"By now the airspeed was down to 80 knots and I knew the airplane wouldn't fly that slow, yet I had good response from all controls.

"While looking for the panic button, I switched from static pressure to alternate and airspeed climbed quickly to 145 knots. Once again it was one of those beautiful spring mornings with the birds singing and the bees buzzing and those four fans roaring sweetly. A postflight inspection revealed a couple dozen clover leaves packed in the static vent line by those busy bees."

We know it isn't spring and all, but water and freezing temperatures can do the same thing to your airspeed indicator—Headmouse.

WILD RIDE

"ON a recent Friday morning I strolled into operations, attempting to snivel a hop of some sort. I was fitted into a section of two FJ-4s assigned to a mission, and had 35 minutes to scramble. With a swift change of clothing, and a hurried brief, we filed the DD-175 and made wheels-in-the-well time only two minutes behind schedule.

"This was my fifth flight in the FJ-4, and the second hop in 11 days. The first three flights had been flown 10 weeks previously to this time, on three successive days. I had attended the entire ground school syllabus of the FJ-4 three times in the previous four months, and was well informed on the highspeed low-altitude pilot-augmented-oscillation characteristic of the FJ-4. However, there was considerable doubt in my mind that this iron monster could actually performed the maneuvers characteristic of a bucking bronco.

"The combination fam-tactics hop went smoothly, considering the hurried commencement, until approximately one-plus-zero after takeoff. Our mission complete, we nosed the two fighters over into a mach .98 descent to 15M, and there spotted the two F-100s. We had filed for 15 minutes local tactics upon completion of our mission and were pulling off the third run on the F-100s when the FJ-4 made a believer out of me.

"The run had been made at .98 at 12,000 feet, with a sharp left

climbing recovery. I momentarily lost sight of my leader and may have eased forward stick to keep him in sight. Then the FJ-4 went into the wildest maneuvers imaginable. I rode the machine through three complete oscillations, with my paw still firmly attached to the stick, before I remembered my schooling and released it.

"The plane recovered momentarily, or so I thought, but actually the monster was on a downward stroke. I hauled back on the stick and the bird began a wild bucking maneuver which slammed me violently about the cockpit. Again I released the control column, retarded the throttle and dumped speedbrakes. The plane recovered immediately, in a left-wing-low, nose-down attitude at about 11,000 feet.

"This wild ride, which probably lasted only a few seconds, left a reading of 8 positive and 3.5 negative G recorded on the meter; and a lasting impression on my mind. The top of the canopy bears the evidence of the maneuver. There are several deep gouges engraved by my helmet. The aircraft showed no other indications of overstress.

"Prior to this time, the hottest aircraft flown by me was an F9F-5. I now believe in, and will be aware of, the pilot-augmented-oscillation possibilities of the FJ-4."

STALE MESSAGE

"TAPED on the bulkhead in one of our squadron spaces, in plain view of all, is a poster. On it is the inscription "Preflight Planning Gets You There." It also depicts a pilot wearing an oxygen mask and a *Banshee* breaking over a runway.

"This poster has been there for at least 7 or 8 months, and looking at it every day got to be quite annoying. 'Why doesn't someone get rid of that thing?' I thought every time I saw it.

"Now for our story. After a pleasant weekend in Western New York, I started south via NAS New York. I landed at Floyd Bennett to pick up my wingman, only after almost getting trapped IFR in a thunderstorm in the mountains on a VFR clearance (may be a little TRW activity, aerology had said).

"We launched out of NSC at 1730 VFR and had good weather all the way south. I went under the hood to get a little bag time and as night came upon us I went contact. I was not smoking after 1800 because my lighter ran out of fluid.

"Then at 2100, directly over Savannah, at approximately 8000 feet, things started going blurry. I got weak as a cat and started to pass out. This I thought, is *it*.

Fortunately, I had the presence of mind to push over. I wasn't on oxygen because *I didn't bring my nose hose with me.* The old one was broken and the new one was still in the can back in my locker. I stuck the hose in my mouth and

Continued next page

anymouse

and his hairy tales

anymouse

Continued

was able to level off at 4000 feet and plug in the auto pilot.

"After about 10 minutes things started to come back, although I was still pretty hazy about what I was doing. As time wore on I tried testing senses to see how sharp my perception was. Things worked out pretty good, so I decided to continue on to our destination.

"By the time we got home, everything seemed to be back to normal, though some people thought I was a little punchy. The squadron duty officer drove me to sick bay for a carbon monoxide test, the results of which haven't come in yet.

"So, it all goes back to that poster in the head. Had I planned properly, I would have had my oxygen mask with me and on above 5000 feet. Then all this would not have happened. Whether it was CO or lack of oxygen we don't know yet, but I hope *I'M* never in a position to have it happen again.

"Prop pilots don't have to sweat oxygen too much, but the old AD has the system in there for a purpose.

FIELD GRADE?

"I WAS the pilot (field grade type with enough log books to know better) and was assisted by a competent copilot. We launched in an SNB for a familiar air station about 800 miles away. Departure was before sunset, landing was at night, and the flight was VFR. All was routine until the last 20 minutes of the flight, and then my head went to the up-and-locked position.

"About a half-hour prior to landing I had asked the copilot to check the RadFac charts for the magnetic bearing and distance from the

range and then take up a heading for our destination. This was for practice only since *I was very familiar* with our intended point of landing. Remember that point as it is the key to my story. Now is when my 20 minutes of non-thinking began.

"Prior to reaching the range facility I saw what I thought was our destination field. We called the tower and received permission to land plus the information that we were number 3 in the pattern. We checked other aircraft and confirmed that there were two planes ahead of us.

"The pre-landing check was made and we turned base leg, noting that aircraft number 1 was well up the

runway in completing his landing and number 2 was on short final. We reported and were given permission to continue on base. At this time we were also told that another aircraft would be behind us and he was on long final. We looked to our right and confirmed the position of this aircraft.

"Now we were on short final and I began to wonder. I wasn't sure, but something seemed unfamiliar about the airport. Thinking all tower instructions had been logical and confirmed with relation to the position in the pattern, my action was to complete the landing. Then, long before the tailwheel contacted the runway, I realized that we had landed on a large civilian field. All this time I had been talking to the tower operator of the military airfield, some 10 miles away!

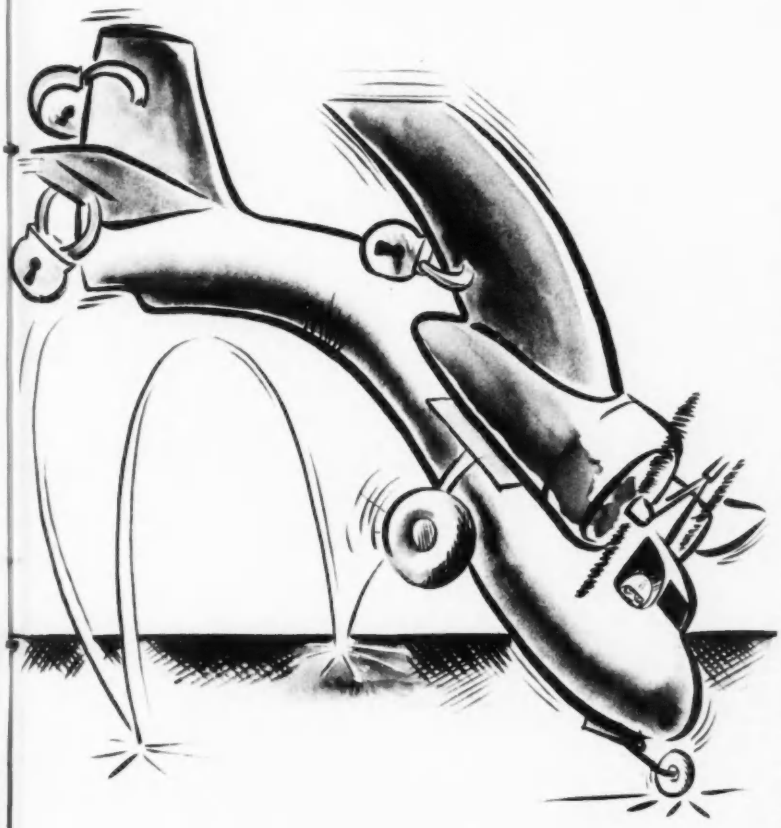
"We completed our landing while switching tower frequencies, meekly acknowledged a scornful tongue-lashing, and received permission to depart. It was obvious we were not in good favor.

"Well, in hangar flying you might say that a pilot well acquainted with his destination airfield would never land on a neighboring one, but it happened!"

FAUX PAS

WHILE going through the pre-taxi checklist in an S2F, the student pilot exercised his controls for full throw. The instructor did not check his own.

The student taxied near the duty runway and then the instructor took the throttles and brakes and taxied into position on the runway



as the student adjusted his instrument flying glasses for a simulated instrument takeoff. The instructor briefed the student that he would handle the throttles and pull up the gear after takeoff.

After being cleared for takeoff the instructor advanced the throttles and he noted the plane heading straight down the runway. He checked the engine instruments and then noticed the plane heading two or three degrees to port. The instructor tapped right rudder to indicate that the student should ease over to the right. The plane continued angling and the instructor applied more positive right rudder pressure.

It was heading toward the edge of the runway and the instructor saw 80 knots on the airspeed indicator so he attempted to pull back on the yoke. He was unable to move it and, thinking the student was holding opposite pressure, called for him to get off the controls. The student complied and when the instructor still couldn't move the yoke he cut both throttles as the S2F bounded off the runway.

After the plane was brought to a stop, it was discovered that the instructor's elevator and aileron controls were locked in the disconnect position.

PENNY-WISE—?

"ON A cross-country hop in a TV, the dual pilot asked me to remind him to plug in his oxygen mask prior to takeoff. This I did, wondering a little why he did not plug it in at that moment. I gave it no further thought until shortly after takeoff from another fuel stop. At this takeoff we had just completed about 5½ hours flight time, so we were getting tired.

"While doing the night IFR climbout procedure, the pilot in front allowed the bank to increase to about 45 degrees and the nose fell through from a normal climb attitude to an approximate 10-degree nose-down position. I asked the pilot what was going on and he replied that everything was okay.

"I suggested that we level the wings and get squared away, which we did after a slight hesitation. Again I was reassured that everything was all right, which it was from this point on. I later found that the front seat pilot had taken off without plugging in his oxygen mask. He realized this and plugged it in, switching to safety pressure which squared him away rapidly. Being tired, we were more susceptible to the dangers of high altitude flying.

"With this background, I come to the point of the story. This pilot does not plug in his mask in order to conserve oxygen while copying clearances, taxiing and so forth. Considering the small amount of oxygen used, even at a field elevation of 5000 feet, it seems like false economy to save that small amount of oxygen (particularly with diluter/demand regulators) and take the risk of forgetting to plug in before takeoff as this pilot did." ●

'TESTING 1-2-

AERO-OTITIS may sound like an Irish flying club to some folks, but every naval aviator, Irish or not, should be aware of the potential danger of this innocent-sounding condition.

For those who haven't yet served their internship, aero-otitis is a non-infectious inflammation of the middle ear caused by differential pressures within and outside of the ear. Sometimes it's called barotitis—same thing. It's a year-round problem to aviators, and probably even more of a problem to flight surgeons who must convince the aviators that it's no small or laughing matter. Many flying hours are lost because of ear troubles, and of those hours many are lost through misconception and lack of knowledge on the part of the grounded pilot who "just can't seem to unblock this ear."

YOU CAN do some things to avoid ear infection and injury. Your flight surgeon is there to help you do it, but he can help only if you understand the seriousness of this malady and go to him for treatment instead of passing it off with a "it's never hurt me before."

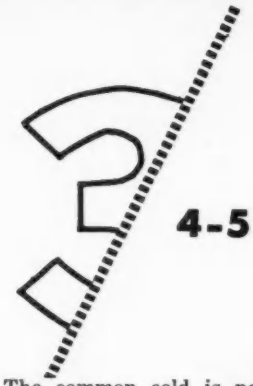
For purposes of practicality, the middle ear may be considered as a rigid, box-like structure whose purpose is enclosing the chain of three small bones, so essential in transmitting sound from the vibrating drum to the nerve receptors of the inner ear. This box is connected to the outside through the Eustachian tube which opens, on either side, in the back part of the nose.

It is this tube which must remain open and allow the pressure in the middle ear to equalize with that of the surrounding atmosphere. Because of a flutter valve at its opening, and because the walls are not rigid, at its lower end, expanding air can escape very easily so that normally no difficulty arises during ascent.

On descent, where air must be readmitted in the face of increasing pressure, we find the flutter valve working against us. Also the canal itself may be collapsed by slight pressure. This is the normal everyday problem in one who is unencumbered with any respiratory infection. It can now be understood why, when one has a cold and his entire nose is stuffed up, difficulty is encountered with ear blocks. However, it must be pointed out that in such a condition air may not even be able to leave the ear, and aero-otitis can result during ascent, although rarely.

With pressure differences acting on the lining of the middle ear box, the blood vessels become expanded and cause pronounced redness of the drum. As the natural history of the disease progresses, this dilation may lead to seepage of fluid and even hemmorrhage into the middle ear cavity. Infection may set in because bacteria love this type of nourishment and a long drawn out otitis resulting in deafness may occur.

Deafness may also result even with no infection, because in a certain percentage of cases the fluid is not reabsorbed and may solidify around the small bones, preventing them from vibrating. Another complication of these pressures is perforation of the drum which may lead to hearing impairment and also infection.



4-5- - -5-4-3-2-1 . . .'

The common cold is perhaps the greatest factor in the production of this disease. Once a block with fluid has occurred, an estimated 2 to 3 weeks of flying are lost. On the other hand, grounding for a cold rarely exceeds 5 days. So, in essence, it merely boils down to a problem in practicality and logic—*5 days versus 3 weeks.*

The fact that an individual with a common cold may be able to clear his ears while sitting in the readyroom has no positive assurance whether or not this situation will prevail at 10,000 feet. A much more valuable prediction can be made after examination by your flight surgeon. This is part of his job.

Lastly, there are many medications involved in the treatment of these conditions which have side effects that necessitate grounding in themselves. Notable among these are the Mycins and the Antihistaminics. Even Neosynephrine and, yes, even your trusted Benzadrex inhaler have been known to cause adverse effects when improperly used. So think twice before you "aviate," and you may do so a lot longer.

And remember that your passengers may not read APPROACH so it behooves you to advise them of this serious problem. ●

Toward Zero

JUST A little over a year ago, 9 Oct 1956 to be exact, OpNav Instruction 3750.7A was promulgated. It required the posting of wheel-watches on runways ends during periods of high density air traffic and whenever flight ops involved single-piloted aircraft.

A comparison of the records for like periods in which wheels watches were not posted with that of the past 12 months reveals the following:

During the year 1955 there were 42 involuntary wheels-up landings; Oct 1955 to Oct 1956 there were 53 involuntary wheels-up landings; 21 Oct 1956 to 21 Oct 1957 there were only 25 involuntary wheels-up landings.

In view of the rising costs of aircraft, as well as the costs of their repair, wheel-watches who have contributed to "saves" can be justifiably proud of this excellent record. However, the prospect for next year's record looks even better in light of the cases where wheels-up landings occurred *even though* a watch had been posted. The cause factors in these were as follows:

- improper briefing of wheels-watch
- posting of unqualified persons on watch
- improper or insufficient warning equipment, e.g., dud flares, no multiple flare system, no Aldis lamp, no voice communications equipment
- preoccupation or distraction of pilots causing failure to lower gear handle

None of the above can be considered impossible problems. So, with a year of prevention experience behind us and the use of standardized procedures and equipment, the goal for the number of involuntary wheels-up landings is zero.

Still Water

SUN, WATER, AND SEA

TO SURVIVE at sea in a life raft you must have water, food, and protection from exposure. Equipment to meet these needs has been installed in liferafts, along with several other useful items.

Water is the big factor, especially in tropic zones. Being exposed to the heat of the tropics demands a greater intake of water, as you perspire freely. If you lose a considerable amount of fluid you will become dehydrated (dried out). Your efficiency and chances of survival are reduced appreciably unless this fluid is replaced.

Because of this hazard, the solar stills and the Permutit kits are available in your raft, with directions on how to use them.

The solar still should be used to make as much water as possible—the Permutit kit reserved for emergencies. (Still water tastes better too.) The still will make approximately two pints of water a day.

In preparing the still for operation, wet the cloth on the bottom before orally inflating it. After it has become round and firm, it should be placed overboard in an upright position. The reservoir should then be filled with sea water, and kept full at all times. The still should also be kept inflated continuously in order to keep the outer bag from touching the black evaporator cloth which would result in salt contaminating the fresh water.

The sun's rays heat the sea water on the black evaporator cloth inside the still, causing evaporation. The salts remain on the black cloth and automatically wash out the drain in the bottom.

Use the solar still as much as possible—reserving the Permutit kit for emergencies.

The fresh water condenses in small beads on the sides of the bag and drains down to the fresh water trap below the ballast tube.

When the still is new you may wish to discard the first two hours output of water for it will contain chemical preservative used inside the still. It's safe to drink, but not too tasty. After the initial use, discarding 15 minutes production the next day is sufficient to clean the bag. With care the still can be used continuously in daylight hours.

It will operate on cloudy days, but maximum efficiency is obtained in hot sunny weather. As the water accumulates it should be saved for future consumption by placing it in a plastic storage bag, which is also provided.

The Permutit kit contains several briquets and a plastic processing bag. Each package of chemical when mixed with sea water in the plastic bag makes about one pint of drinkable water. The processing of each pint of water requires approximately 45 minutes. — Not like turning a faucet—but effective.

Also available is a paulin, which has several uses. It can be used for catching rain water, rigging a sail, as a signaling device, or for protection from sunburn.

Caution should be taken to keep the body well covered to prevent sunburn. This is not the time to start your summer tan. Sunburn ointment is provided and should be applied before you become as red as a night flare. More effective signal devices are provided—such as the regulation day-and-night distress signal, dye marker, whistle (for the mermaids) and signaling mirror. All are clearly marked with instructions for use.

All equipment should be lashed to the raft by the nylon line available for just this purpose. Also secure the raft to yourself so that in the event you are thrown out, all will not be lost.

Remove your shoes while in the raft so as not to rupture nor puncture it. Aren't you more relaxed with your shoes off anyway? Make yourself as comfortable as possible, don't overeat on the rations provided, and try to keep busy improving conditions in the raft with the equipment available. You might even go fishing.

Signaling equipment should be stowed where it will be readily accessible in case an aircraft or ship is sighted. With sea-air rescue units in operation today, you should be rescued in a very short time, even under the worst conditions.

NOTES FROM YOUR flight surgeon

LOST RAFT

FOLLOWING an AD-6 engine failure and bailout the pilot was picked up by helicopter.

All safety and survival equipment had functioned properly with the following exceptions.

With the opening shock of the parachute the PK-2 raft and its accompanying survival equipment were lost. The lanyard of the raft which the pilot had properly attached to his mae west snapped near its connection with the retainer strap. Evidently the PK-2 envelope retaining buckle was not completely fastened, allowing the raft assembly to slide out on opening shock. The raft retaining strap and hardware were not designed for such high tensile loads.

Paralofts are urged to check those buckles on all their equipment to make certain they are secure for all future flights and pilots may want to check their gear themselves.

EMERGENCY ESCAPE PRACTICE

SIMULATING escape from their aircraft, pilots and crewmembers should conduct the practice while wearing full personal equipment that would normally be worn in flight.

This was apparent in an underwater escape from an A4D recently. The pilot was wearing his parachute. He was unaccustomed to the weight of the chute seat pan and pararaft, had never simulated a ditching or jump-out with this equipment on, and mistakenly believed he was attached to the seat when actually he was lifting the weight of the chute and raft.

COLD FACTS

Liquid Oxygen, still new to some units, looks like water. Though it's handy, helpful stuff, liquid oxygen must be treated right. It acts like mercury (if you ever broke a thermometer, you know how that is). It is measured in liters, not pounds-per-square-inch or cubic feet like gaseous oxygen.

It is cold enough to freeze you if it touches you; in fact its boiling point is —297° F.

In addition, it must not be confined. Each unit of storage and transfer equipment has rupture disks and a vent valve. This means that a Lq. Ox. container is continally venting gaseous oxygen and letting it escape to the atmosphere. The oxygen concentration in the air may be high, especially indoors, and you'd better not smoke.

For those who handle Lq. Ox., remember nails and taps in shoes can cause sparks. And if you should ever get Lq. Ox. spilled on your clothes, be positive that concentrations of gaseous oxygen in your clothing are dispersed completely before getting close to sparks, open flames or other sources of ignition.

MEDICAL CENTER

THE COMMISSIONING of a Naval Aviation Medical Center in Pensacola Florida has resulted from the integration of the Naval Hospital there with the Naval School of Aviation Medicine.

It will now be possible for unusual or problem cases among aviation personnel throughout the Navy to be referred to the Center for consultation or to be hospitalized for study by clinical and aviation medical specialists.

The research program is organized in nine basic fields. Stress Due to Acceleration and Deceleration; Stress Due to High Altitude; Stress Due to High Intensity Noise; Physical and Psychological Standards for Aviation Personnel; Aviation Safety, Escape and Rescue; Training and Re-Education of Aviation Personnel; Studies in Psychophysiology including Sensations and Illusions; Problems in Human Engineering; and Miscellaneous Problems Involved in Aviation Medicine.

CUMULATIVE INDEX OUT

A CUMULATIVE index to Vol 1 and Vol 2, APPROACH is now available. Copies have been distributed to all safety officers. If your unit did not receive a copy, or if additional copies are desired, write Director, NASC, Attn: Literature Department.

Are We Near the BREAKING POINT?

"GENTLEMEN, we're gathered here this morning to discuss a traffic problem, and to find some ways of eliminating the problem. You all know what the problem is, so I'll just state it briefly and toss it into the center of the table where we can all claw at it and perhaps arrive at feasible recommendations. This is not a formal board or committee, so please feel free to kick your thoughts around informally so we can all hear them.

"As you're all aware, the steady increase in the number of high-performance aircraft that we're operating has created a serious hazard in the zone directly upwind of the duty runway. The airspeed and climb characteristics of these aircraft normally dictate that they climb more steeply than their predecessors. And the current practice of breaking inbound flights over the center or the downwind end of the duty runway has brought us near the "breaking point," especially when formation flights are involved.

"Do you see what's happening? We've got aircraft on steep climbouts reaching 2500 feet or so less than three miles from the runway end, and we've got formations starting their break over the runway at 1500 feet and carrying the break out to where they're tangling with the outbound traffic."

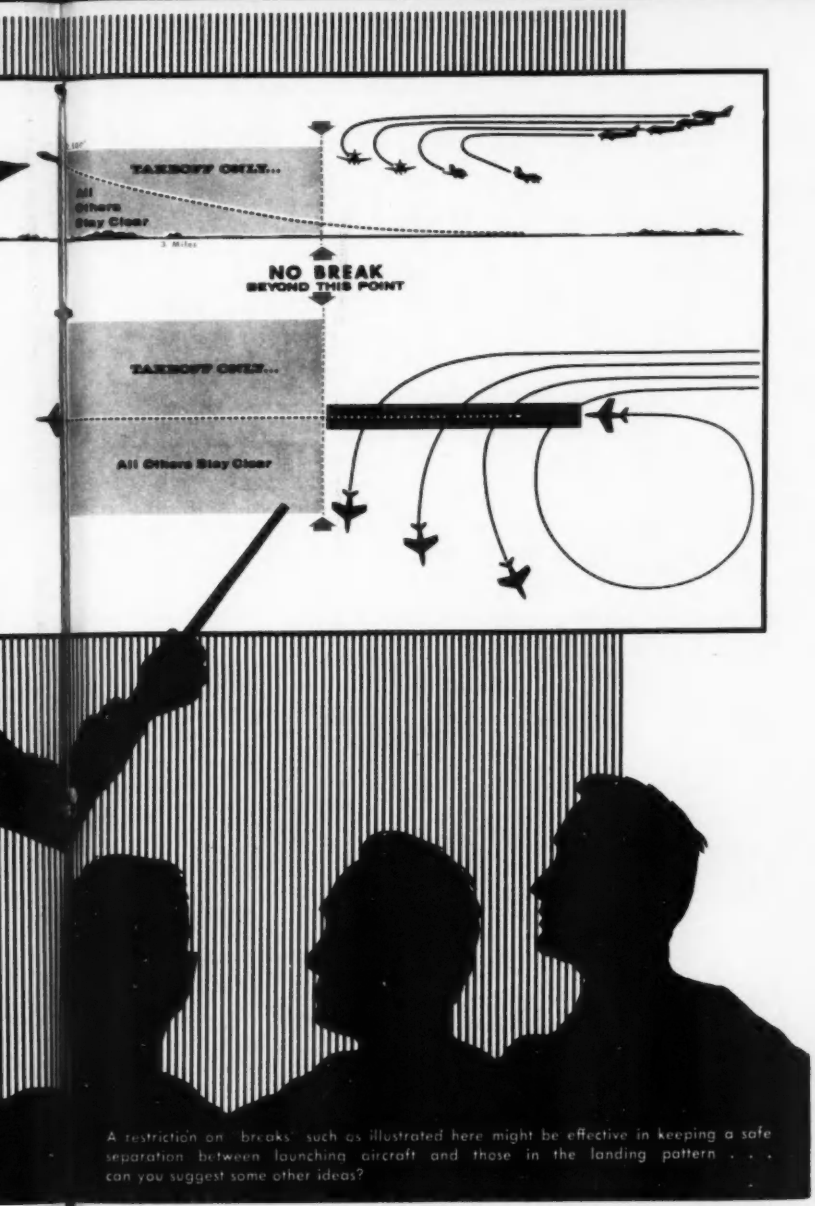
"Yes sir, we have that exact situation at our NAS and it's given me the shakes a few times. What worries me particularly is that we've got a lot of new people blasting off in F8U's at our place, and they've got their hands full even with nothing but pigeons in the air."

"I know what you mean Commander, and I'm inclined to feel that with planes like the F8U and a few others we've got what almost amounts to a reversal of priority between takeoff and landing—or rather, between approach and climbout. It's not a legal priority of course, but I think there's a mighty strong moral priority in favor of the lad on climbout."

"Well, you're right if you don't include takeoff priority Pete, and I don't believe you do. But I agree with you that the guys in the slot, with more air all around them, are in a better position to look and dodge than the fam boy who's just become airborne and is struggling with gear, flaps, wing and climb speed. We're coming pretty near to the end of the days when you could get her airborne and then hold'er down low until clear of the landing pattern."

"There are several reasons why that's becoming passé gentlemen, one of which has been mentioned already. Noise abatement is another reason, and then our pilot, whether he's a recent grad or an Old Pro, wants to get up where his E-seat will do him some good if he needs it. I think those conditions make it almost mandatory that the climbout traffic be given an unobstructed area, like I've sketched here." (*see illus.*)

"I'm in favor of that, although it might not be easy to put into effect. What would you expect, for example, of a Number 4 man whose leader breaks late and then the next two take long intervals? Should he pull up, or bumble on



A restriction on 'breaks' such as illustrated here might be effective in keeping a safe separation between launching aircraft and those in the landing pattern . . . can you suggest some other ideas?

in while cursing the leader? You'd have a situation there where one pilot set up the situation but another pilot is *in* it."

"Well, common sense has to apply too—remember, we aren't trying to find a donkey to pin the tail on, we're trying to separate two conflicting bundles of traffic. I'm not sure that this idea of mine is the ultimate way of solving this problem, because the problem isn't as simple as drawing a line in the sand with your big toe and saying, 'don't cross.' But I haven't heard any other suggestions yet . . what about you, Slim, you're frowning like you've got something on your mind, what is it?"

"I'm trying to visualize your scheme in practice, and I wonder how universal it could be. How about at sea, for example?"

"I don't see why it wouldn't work around carriers, Slim, since the whole racetrack pattern is moved considerably aft with the mirror system. What do you think, Sam?"

"Mmmmm, probably would, at least it's not a radical change in procedure that would require unlearning. Of course, you'd have to provide for unusual circumstances. Like the Four man Pete mentioned. If a guy really needed to go farther upwind, he could call the tower for a long break."

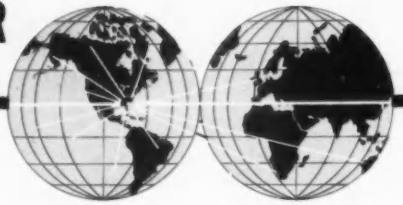
"Sure, and if a pilot taking off wants or needs a steeper climb than normal, at less airspeed, I think he should get tower clearance for that too, since it's not common. Tell you what, let's bring this up at the APM this afternoon and see if we can get some more ideas; I'm not fully satisfied with this one of mine and I'm sure most every aviator has some sort of idea about what ideal traffic pattern he'd establish if he were pulling the strings."

"Okay, why don't we all think about this problem some, since it's one that affects every one of us, and fire our ideas in to the Safety Center. They're looking for recommendations about things like this, I know. If someone comes up with a good one, it will sure make me breathe easier every time I point 'er into the blue."

"Very well gentlemen, the problem is wide open for solution, and don't pose it to your senior pilots only—we've plenty of junior birdmen who can contribute a fresh outlook here without being cluttered by traditional concepts . . . ***everyone's idea is welcome!***"

Amen to that! NASC will be pleased to read your *solution to this serious situation. Perhaps* you *can solve it before it becomes too serious. Just drop us a line by letter or Anymouse Report.—Ed.*

MONITOR



EXCERPTS FROM REPORTS BY NAVY SAFETY COUNCILS THROUGHOUT THE WORLD, WHO PROVIDE LOCAL LEADERSHIP AND EMPHASIS TO THE NAVAL AVIATION SAFETY PROGRAM.

White Spots

The CO_2 fire extinguishers on the parking apron are a hazard to ground personnel during night operations, particularly when directing taxiing aircraft. It was recommended that a white spot, approximately four feet in diameter, be painted on the area where the extinguishers are normally placed when not in use. —*Sub-Area, NAS Atlantic City*

Shut-Down

Due to tower personnel's difficulty in understanding radio transmissions during high power turn-ups, it was recommended that jet aircraft on the line be shut down during emergencies.—*Sub-Area, NAS Atlantic City*

Student to Lead

It is recommended that for initial low-level training flights, the pilot undergoing indoctrination fly the lead, since a qualified chase pilot can more easily detect errors in technique and procedure.—*Sub-Area Quonset Point*

Vehicle Speeds

It was brought out that line vehicles are still driving too fast on the parking apron and taxiways. It was strongly recommended that each unit Commanding Officer direct all of their officer personnel to become more active in controlling vehicular traffic.—*Sub-area, NAS Atlantic City*

Bird Nests In Engines

One instance was reported of starlings building bird nests in both engine air scoops of an R4D parked on the ferry line less than 36 hours. This is getting to be a flight safety item and pilots have been requested to thoroughly check each aircraft for the presence of bird nests.—*2nd MAW*

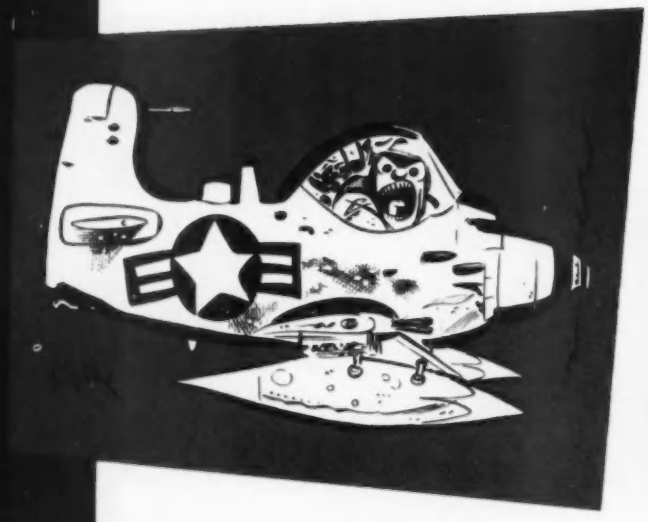
Boon Dockers

For liberty and parades and flying (as long as that old torque meter registers an adequate amount), dress shoes are fine, but what if you have to bail out?—What's the first thing that happens when your chute pops open?—you're right, you lose your shoes. When you lose your shoes the only thing between your feet and terra firma is one pair of socks, wool, brown, and in most cases they will offer precious little support for your arches and ankles when you hit the ground. Most of our flying is over extremely rough terrain and this will only be compounded if you land barefooted.—*VMR-252.*

FROM ONE

NAVCAD'S DIARY

Once again, APPROACH gets to the heart of the matter and fearlessly presents Both Sides of the Story. We are fortunate to be in possession of a storehouse of highly enlightening material in the form of a diary. It was found in the settling Texas dust of a group of rapidly departing NAVCAD's. Like not a few others before them, they had suddenly discovered they were further along in the Program than they'd figured and CQ was again beckoning from Pensacola. On the next few pages are several excerpts from this valued prize and a report of our subsequent investigation of the incidents reported therein.



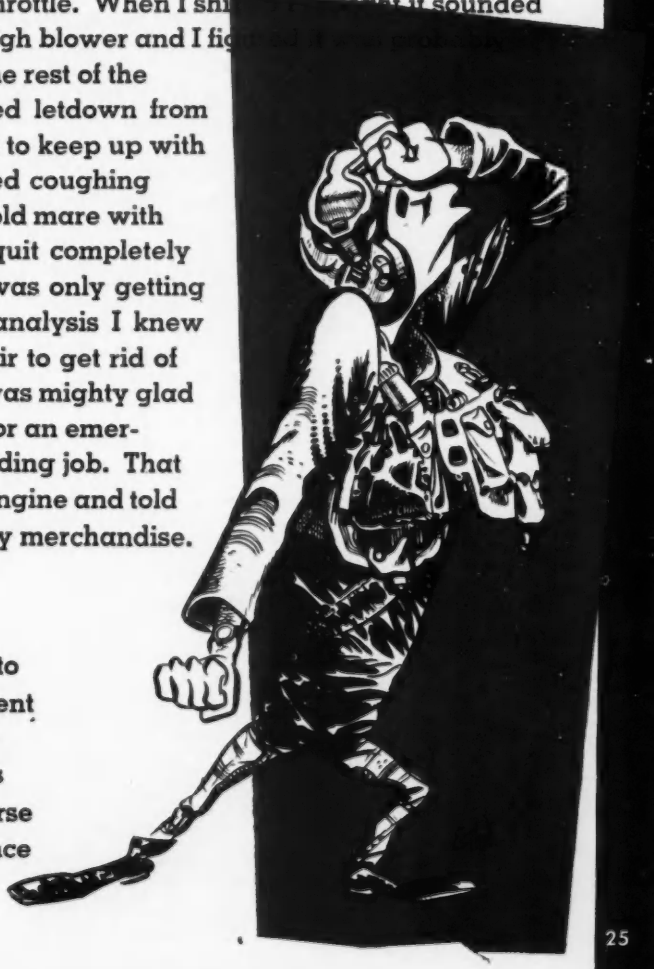
BUM LUCK

MONDAY— What a way to start the week! Had the first hop after the weekly safety lecture—instruments—not too bad. But on the way back was letting down at about 1500 ft/min. and that Beauty started acting up, spitting, coughing and sputtering, and all of a sudden quit cold. Retaining my self-composure, I got the mixture up and boost pump on. . . . It smoothed out some and I made an emergency approach on Blue Base. I had to down that Jewel for "rough running engine."

LATER, on the PM bombing hop I got a Bird with a bum prop. Just wouldn't check out. Set 1700 turns and pulled it back into high pitch and it would drop to 1275 and when I'd push it back up it'd churn out only 1350! I took that Bucket back and got a spare.

MY REPLACEMENT was one of the few good ones we have. Purred all period, but in my runs I noticed the rudder trim was 1½° right instead of 2½° left. I hated to, but down it I did: "Down for trim."

TUESDAY—Worse than yesterday! Was set up for a Fam Oxy hop but got one of those hard to start jobs and that Klunker backfired so loud the Safety Officer heard it and had the tower recall me! The dirty so-and-so! SO, after a while they finally got me a replacement and, Oh! Brother, another Marvel! I met chase over the field and he sure wasn't in a very good mood. Man! he was really driving and in the climb I had to use 38" and 2700 turns. At 14 thou he called to switch blowers and I did like he said—20" 1600 turns, shift, RPM back up and add throttle. When I shi[illegible]ght it sounded funny but this was my first time in high blower and I fi[illegible] normal for it to run a little rough. The rest of the hop was OK but on the high speed letdown from 23,000 feet I was doing my darndest to keep up with him and at 15 thou my Terror started coughing and wheezing and barking like an old mare with pneumonia. At 13,000 she nearly quit completely and although I was drawing 32" I was only getting about 18" worth. Without further analysis I knew what to do. I flipped on alternate air to get rid of the ice. But then it got worse and I was mighty glad to be over the field. I set myself up for an emergency approach and did an outstanding job. That Joker I downed for a rough running engine and told Dispatch what I thought of their lousy merchandise.



I'LL sure be glad to get to the fleet where they have decent maintenance so I won't have to fly any more of these Rattletraps. This week looks like it's going to be worse than last. All I can say for Maintenance is "How Bad is That?"

POINT AND.....

By St. Nick's beard! What had we here? At last an Inner Eye? The Training Command revealed? Unsafe equipment? Maintenance malpractices EXPOSED?

In spite of a strong desire to read all of this tome immediately, it was felt that the situation could be better handled one thing at a time. After reading just two pages of this young man's tale of woe our hearts went out. And, of course, so did an Investigator. Here we present his report, from the time he located the Maintenance Officer of the training squadron in question:

• • • I found him just as he was sinking back into his chair, sobbing and mumbling, "How Bad is That?" One of the Chiefs, it seems, had told him about a twisted tail shaft he had discovered while checking out a rough engine gripe. Feeling rather sorry and knowing the Chaplain was out of town I leaned down and bent a ready ear. It started the usual way, "not enough men, can't get parts, students ripping the planes apart, and utilizing my good troubleshooters on petty gripes."

The last one stopped me so I asked him to explain. He showed me some sample gripe sheets. By strange coincidence they were just the ones I was looking for:

1. "Down for Rough Running Engine"—X's out ok on deck.
2. "Prop won't X out"—Xed linkage and governor—X's ok.
3. "Down for Trim"—Up for test hop.
4. "Down for Backfire"—carburetor change.
5. "Down for Rough Running Engine"—Twisted tailshaft, engine change.

Right then and there I felt an urge and figured I might as well do a little writing and try to get out the straight scoop—here it is:

For the benefit of those who napped in the weekly safety lectures at Ground School we say this again. Due to repeated reports from the fleet activities, Douglas Aircraft has found through exhaustive tests that our good old Alpha Delta will normally run rough at 22-25" manifold pressure with 2000 rpm. This is due to a resonance set up by the prop at this specific RPM which causes poor fuel mixing, in turn giving a rough running engine. Some results might be obtained by putting the mixture in rich; however, a change in RPM either up or down will break up the resonance and solve all your problems.

NOW GO back and read our friend's first gripe on Monday. Note he does not tell Maintenance what his power settings are, temps and pressures, and never, never would he think to sign a gripe so they could contact him to ask for more information. What if he wrote down a silly gripe—you don't think he would want the whole world to know! As it turned out a good mechanic put in five hours of "hair-pulling" work and finally had to put the plane up for an instructor test hop, noting "Ground X's ok."

"Prop won't check out"—The maintenance people sent out a good prop man who spent three hours checking the prop linkage for play and the prop governor for malfunction, only to find our friend had not tightened the throttle friction knob suffi-

.....COUNTERPOINT

ciently and had allowed the throttle to sneak back as he pulled the prop back into high pitch.

"Down for Trim"—Again, never sign your name to a gripe or write down what the trim settings were as it makes fixing too easy! In this case an instructor had to test hop the aircraft to find out the necessary dope.

"Down for Backfire" — That "so-and-so" of a Safety Officer who had him go back to the line probably saved his soul as the backfire bent the butterfly valves and fuel injector nozzles in the carburetor resulting in a carburetor change. Results: One aircraft in the barn awaiting a new carburetor and 12 man-hours for installation.

Anymouse would have aged 10 more years if he could have been in on this one: "Down for Rough Running Engine"—Again, don't let out any secrets such as temperatures, pressures and power settings and for goodness sakes don't sign your John Hancock — make them work a little to find the trouble!

It only took two mechs three hours to find that it was the timing causing the engine to run rough. Another two hours of adjusting to find they couldn't get it back in time. And only 30 seconds to find that the tail shaft was twisted resulting in an engine change. Only took four men three days to get a new engine out of mothballs and on the aircraft. Then another week of slow time engine run-in by the instructors in all their spare time. WHY?

OUR FINE friend had his head up and locked when he shifted blowers and it was found he shifted at 2600 rather than 1600 rpm. Lucky it didn't unravel right there. He continued his high power climb and soon leveled off to join the flight. With his head still up and locked he paid no attention to his cylinder head temp and never thought to close his cowl flaps. Tooled around half an hour with cylinder head temp at 130° but didn't get into trouble until he started the high-speed letdown. Down also came the cylinder head temp and she started to run rough and lose power. Having been cold at altitude and losing power he needed no further analysis or inspection—it *must* be ice so he puts it in alternate air. By now he can't draw enough power to maintain level flight and get the cylinder head temp up so down he comes and luckily they planted Blue Base directly below. Never did he know that his cylinder head temp was 90°.

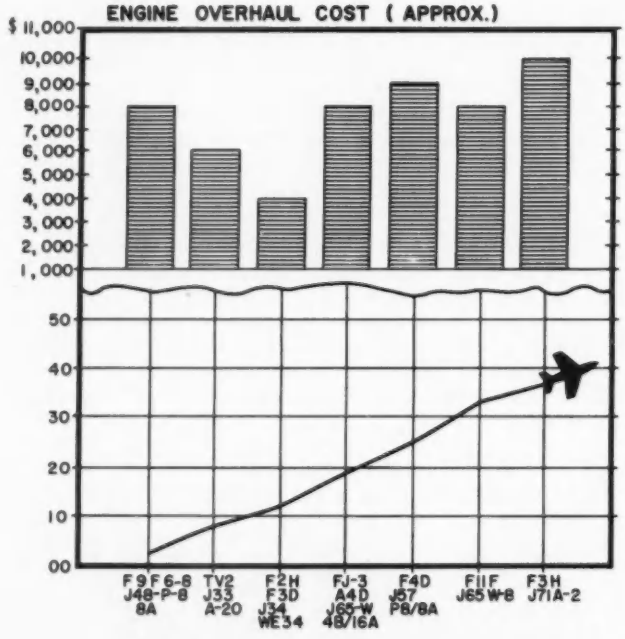
WHY WAS the Maintenance Officer crying? In two days, one pilot had caused him to lose three available aircraft, over 100 man-hours of labor, one carburetor, and one engine, and 13 hours of test hops for instructors. How Bad is That?

Every sad story must have a moral so here it is. Think back as you read this. Have you ever pulled a goof like one of the above? Have you forgotten to sign your gripes? Do you always give all the pertinent info you can, such as power settings, temperatures, pressures, maneuvers involved, etc.?

The whole answer is think, *think*, THINK, it will get you back on the deck safely if you have an actual emergency and it will save a lot of headaches, manpower, and money if you will give maintenance all the important information when you down an aircraft.

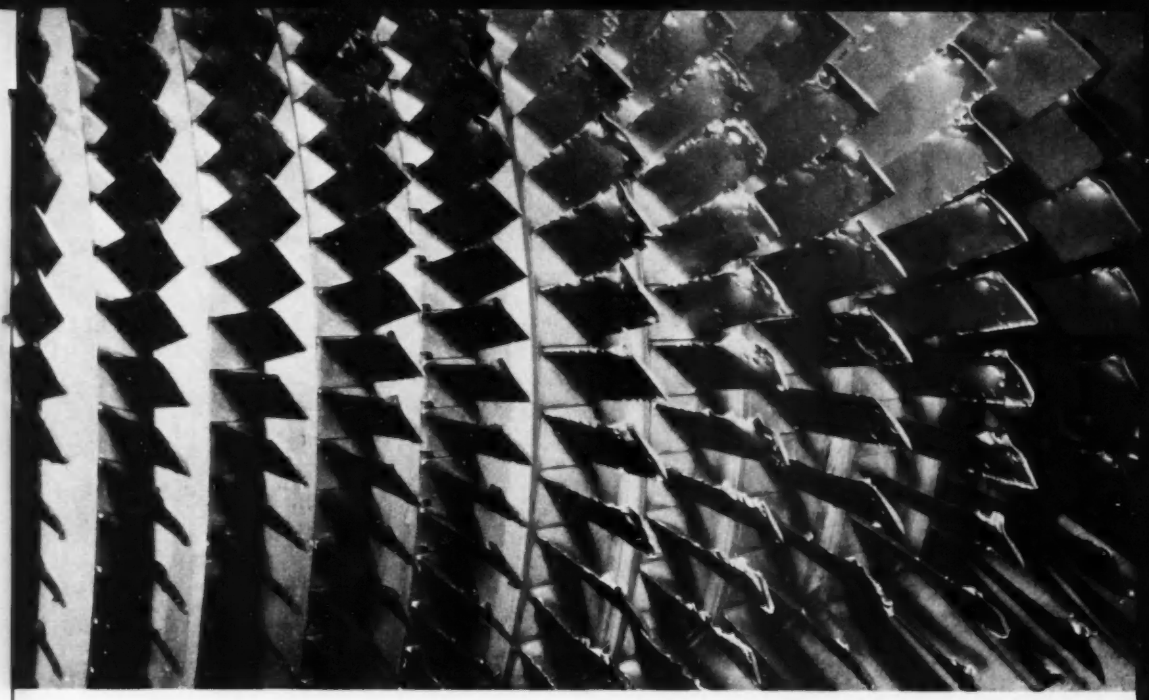
Foreign Object Damage

ARE WE TO LIVE WITH IT?



PERCENTAGE OF JET ENGINES RETURNED
TO OVERHAUL BECAUSE OF FOD(APRIL I - JUNE 30,57)

Increased performance demanded of new jet engines means thinner compressor blades, reduced engine clearances, lighter materials and higher temperature. So, jet engines are becoming more, rather than less, susceptible to F.O.D.



Major foreign object damage to J-65 engine of an A4D aircraft was caused by an object the size of a ¼-inch bolt.

COMMANDER Naval Air Force, Atlantic recently reported that foreign objects damage to jet engines and aircraft is costing the Navy millions of dollars each year and the cost in terms of lives and combat-readiness is incalculable.

Until jet engines are built that make like garbage disposal units, what can we do about reducing these costs? This article, based on ComNavAirLant Instruction NavAer 02.22, may shed a little light on this question.

Fact 1: FOD is the predominant cause of the return of jet engines to overhaul. The chart on the left-hand page shows the percentage of engines returned to overhaul from 1 April to 30 June 1957 because of FOD, as reported by overhaul and repair authorities in Disassembly and Inspection Reports (DIRs).

Fact 2: The consequences of FOD to a jet engine run from rejections of an engine for flight after inspection to a violent in-flight explosion which destroys the aircraft. While the seriousness of the latter is readily apparent, the former is a severe handicap to aircraft operations. Time spent in uncanning new engines, depreservation, engine build-up, engine change and the reverse process or repair on the damaged engine is an extremely undesirable workload which adversely affects fleet readiness.

Fact 3: The continuing demand for increased performance from new jet engines means thinner compressor blades, reduced clearances throughout the engine, lighter weight materials, and higher temperatures. Therefore jet engines are becoming more, rather than less, susceptible to FOD. This is borne out by the percentages shown in the chart. Higher overhaul costs can be expected. These are reflected in the upper section of the chart.

Fact 4: Poor housekeeping and poor maintenance are the two main causes of FOD.

Because of these facts some organizations have established a foreign object damage prevention program. (ComNavAirLant Instruction NavAer 02.22 provides instructions for reducing gas turbine failures in NavAirLant and requires commanding officers of operating and class C/D activities to designate an officer as Foreign Object Damage Prevention Officer).

The FODPO is to implement the program and adapt it to local operating conditions. Strong support of this aggressive move is in-

ARE WE TO LIVE WITH IT?

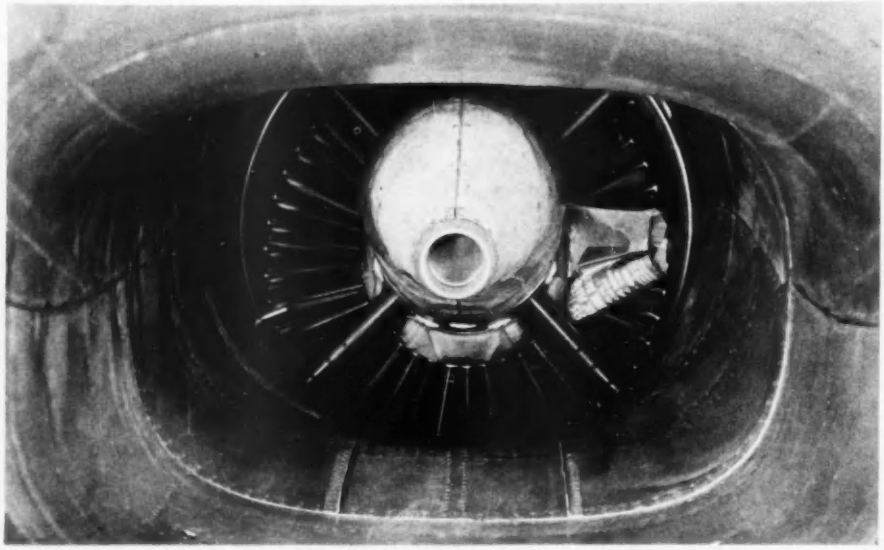
Continued

dicated in BuAer's Dispatch 0232Z Sept. 20, 1957 which is quoted in part: "COMNAVAIRLANT INSTR NAVAER 02.22 CODE 722 CONSIDERED OUTSTANDING AND COMMENDABLE PROGRAM FOR REDUCING FOREIGN OBJECT DAMAGE TURBO-JET ENGS."

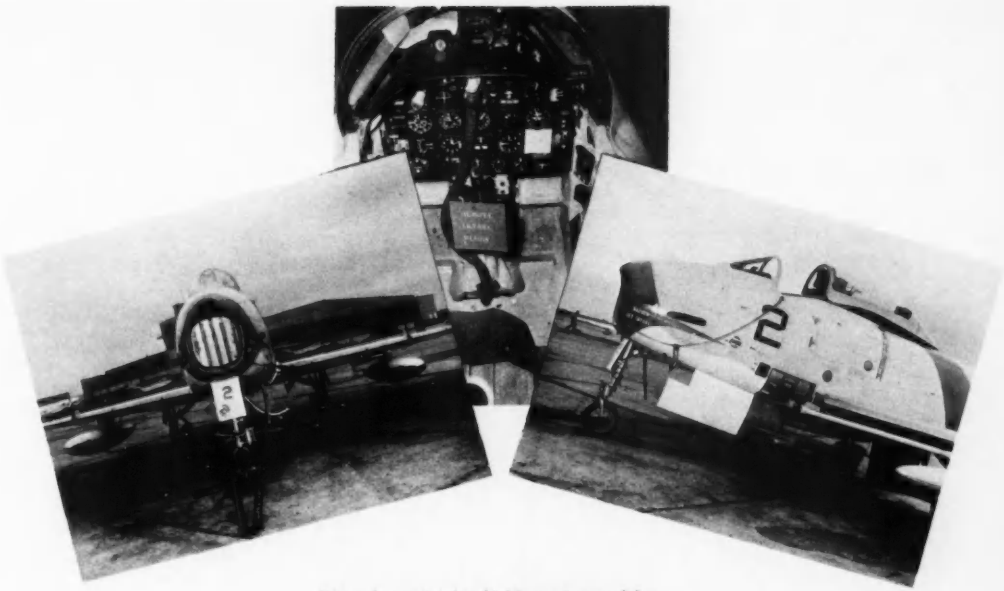
This of course means that considerable effort will be expended to combat the problem of foreign object damage. And, as a result, we may expect future designs in aircraft and equipment to be improved to help reduce the foreign object damage rate. But in the meantime we can help ourselves by improving our maintenance and housekeeping practices.

HOUSEKEEPING—An inspection of one of our master jet bases revealed many of the padeyes to be full of gravel, pieces of concrete, sand and metal. This was said to be in spite of, or due to, periodic cleaning of the runway with a rotary sweeper.

A visit to an East Coast carrier prior to scheduled flight operations also revealed that the majority of the padeyes on the flight deck each contained enough debris to cause FOD to several jet engines. FLIGAs submitted by a VF squadron aboard a West Coast carrier during a one-month period reported four instances of "unknown type foreign object passed through intake into compressor." The carrier's commanding officer noted in his endorsement that an air compressor is now being used to blow out all objects in padeyes and cleats to facilitate sweeping and picking up of all foreign objects. NACA tests have proved that vortices formed at the inlet duct of jet engines are more likely to pick loose foreign objects from padeyes and cracks than from a smooth surface. To combat this problem BuAer is procuring giant vacuum sweepers for runways; twenty are now in Navy use.



Can of cleaning fluid, lodged in intake duct, was snatched from the hands of a plane captain by the suction of an FJ-3 turning up.



Tripped up—Intake shield was ingested by FJ-3 on turnup. Tripled up—Squadron safeguards: (1) Striping shield (luminous paint is most effective) left; (2) tagging flight control stick, center; (3) attaching streamer from shield to cockpit access handhold.

The largest source of stone, cinder, asphalt, chunks of concrete, type of foreign object damage is the earth border or immediate edge of runways, taxi strips, flight lines . . . so frequent inspection and "shoulder-to-shoulder" pick-ups will still be necessary.

MAINTENANCE PRACTICES — While there is a great need for a clean-up campaign on parking ramps, taxi strips, run-up areas and runways, an equally important campaign is needed to make sure that tools, nuts, bolts, cotter pins, washers, bits of safety wire, and personal articles such as pens, pencils, coins, yes, and even wrist watches are removed from plenum chambers and areas in and around intake ducts.

A review of foreign object damage reports by FLIGA (see tabulation page 34) indicates that a considerable number occur right after or during maintenance.

Further, a survey by Douglas Aircraft Co. of internal engine damages disclosed that the highest percentage of damage due to foreign material occurred at stages of operating hours that coincided with regularly scheduled check periods. During the periods between checks, foreign object damage was negligible.

From this it can be inferred that particular care is in order after a check is completed.

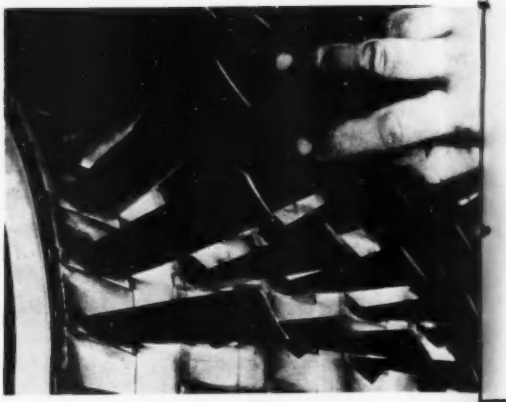
Make sure tools, rags . . . are removed from the aircraft and work area and that all components are secured prior to run-up.

A recent example: A J-71 was damaged because the intake duct was left unsecured by the night check crew. Investigation revealed several weaknesses of the squadron's maintenance system.

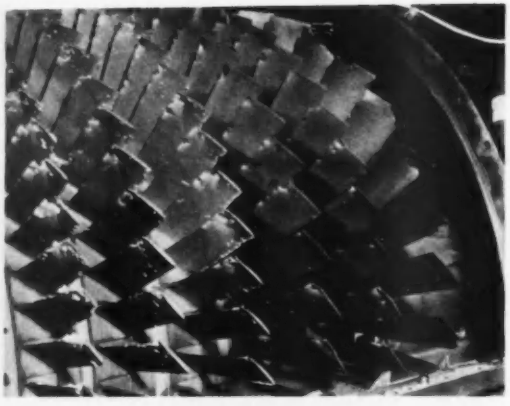
1. No work order covered the power plants part of the work
2. Failure of the shop correcting the discrepancy to replace the duct prior to signing it off
3. Lack of continuity between the day and night maintenance crew

ARE WE TO LIVE WITH IT?

Continued



Damage varies from complete destruction of engine to small nicks on compressor blades.



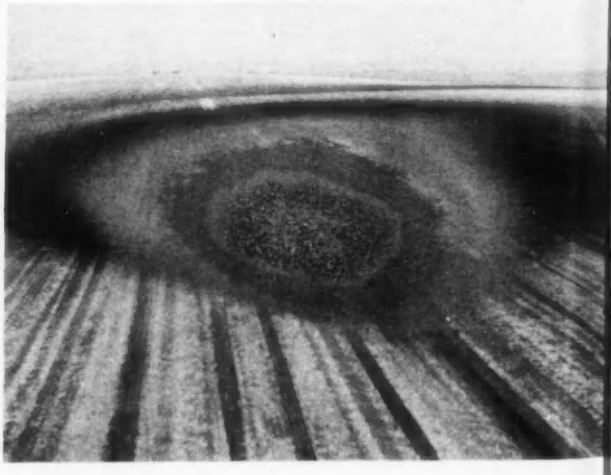
The extent of damage depends on size, shape and ductility of the object. Greatest damage is caused by metallic objects.

4. Failure of the maintenance chief to note the write-up in the maintenance log prior to placing the aircraft in commission. Does your maintenance system have these weaknesses?

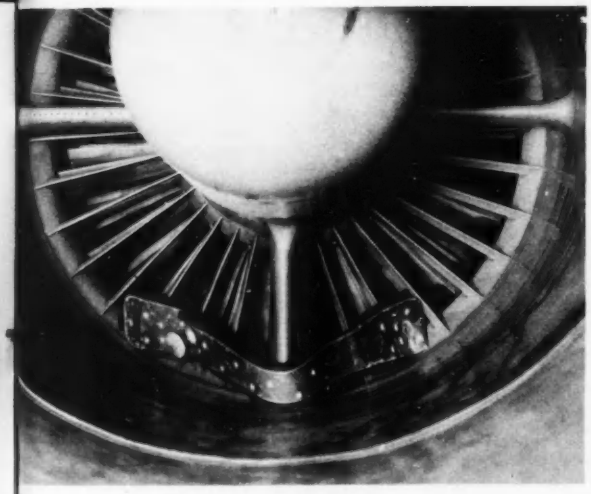
IN OUTLINING the duties of the FODPO the ComNavAirLant Instruction has specified:

- When an engine is changed, the inlet duct(s) and engine compartment shall be cleaned and inspected prior to installing the engine. In the case of aircraft having plenum chambers, the chambers shall be vacuumed and a thorough inspection shall be made to ensure that all loose bolts, nuts, washers, cotter pins, tools, safetywire and other debris are removed. After the engine installation is completed, and prior to buttoning-up the aircraft, the inlet ducts and engine compartment shall be inspected insofar as is possible for the presence of foreign objects.
- Instructions shall be promulgated requir-

The effect of high jet outlet temperatures on runway surface—a source of foreign objects.



Intake duct door bracket of F2H came loose. On takeoff run-up nuts and bolts were drawn into engine.



ing that personnel remove pencils, tools, parts, money, and other objects from pockets prior to working in, or adjacent to intakes and cooling air ducts.

• Each preflight, daily and turn-up form shall have an entry requiring the inspection of inlets and ramp/deck areas for foreign objects prior to turn-up (or motoring the engine with the starter).

• Instructions shall be promulgated requiring the periodic cleaning of parking ramps, decks, turn-up areas, and taxi strips (if assigned as cleaning stations).

• Prior to commencement of flight operations each day, the Maintenance Officer, FOD Prevention Officer, or duly-appointed officer, warrant officer or senior petty officer shall conduct an inspection of the flight line to ensure that the area is ship-shape.

• The high-power turn-up area shall be inspected at periodic intervals to ensure that good maintenance and housekeeping practices are being carried out.

• When runways, taxi strips or decks are in a condition which might result in FOD, a speed-letter report shall be made to the Commanding Officer of the station or ship concerned, with copies to the cognizant Commander Fleet Air or Fleet Air Wing, and to Commander Naval Air Force, U.S. Atlantic Fleet, with recommendations as appropriate.

• Consideration shall be given to handling aircraft in such a manner that blast effects on parked aircraft are kept to a minimum.

• When taxiing, the RPM shall be kept to a minimum and adequate spacing between aircraft shall be maintained to avoid blast-induced FOD.

• Intake and cooling air duct covers shall be properly installed when the aircraft is not scheduled to be flown.

SUMMING it up, it appears that we are to live with foreign object damage *unless* a positive approach is taken by operating activities to eliminate the source of FOD. Strict compliance with the following precepts will insure a large reduction in the number of engines being returned to O&R for foreign object damage.

• Pick up any debris found on the parking ramp, run-up area and on the runways.

• Make a thorough check, after all maintenance is accomplished, to account for all tools and parts used or replaced.

• Never wear loose clothing or carry rags or gloves in pockets while walking around engines in operation.

• Use care and caution when running an engine. Use no more power than necessary. This can reduce the suction power of the engine.

• Inspect to determine that all inspection doors are secured and loose parts removed from the engine ducts before an engine is operated.

Editor's Note. The Naval Aviation Safety Center is currently reprinting the USAF information pamphlet, "Aircraft Gas Turbine Engine Foreign Object Damage Protection," prepared by the Oklahoma City Air Material Area, Tinker Air Force Base.

Distribution of this pamphlet, which offers additional guide lines to FODPO, will be made to all Aviation Safety Officers in a supplement to the December 1957 "Crossfeed." Attention is also invited to APPROACH *issues of Feb. 1956 and March 1957 concerning foreign object damage prevention.*

ARE WE TO LIVE WITH IT?

Continued

FOREIGN OBJECT DAMAGE

reported by FLIGA* 1 January — 1 October 1957

*Forced Landings, Incidents and Ground Accidents (OpNav Form 3750-10)

Model	Case No.	Type Foreign Object/Cause	When Noted	Engine
FJ-3	1	Ingested duct cover	preflight turnup	
FJ-3	2	Approach light (left in intake)	post-maint turnup	
FJ-3	3	Can drawn out plane captain's hands	post-maint turnup	
FJ-3	4	Metal by-product of repair (inadequate clean-up of ducts)	2nd intermediate X	
FJ-3	5	Two pair pliers left on aft part of generator housing	post-maint turnup	
FJ-3	6	Rocks blown into duct by preceding aircraft	landing rollout	
FJ-3	#7 thru 14 — Unknown type foreign object		preflight inspection	
FJ-3	15#	Bolt, inlet duct cover support, fell out	in flight	
FJ-3	16	Engine accessory cover retainer bolt	not reported	
FJ-3	17	Nose gear locking pins (improper length warning flag)	maint turnup	
FJ-3	18	Ingested bird	on takeoff	
# All occurred within a 6-week period in one squadron aboard one carrier. One a/c experienced FOD 3 times, 2 a/c twice each.				
FJ-4	1	Retainer bolt, airflow modulator link (nut was not installed)	not reported	
F2H-4	1	Bolt, nut and cannon safety reel; failure to inspect inlet duct	shipboard preflight	port
F2H-4	2	Screw from aft refueling probe fairing ingested	postflight inspection	not reported
F2H-4	3	Electrician drawn into port intake upon dismounting port side		port
F2H-4	4	3/8" castle nut from intake guard assembly ingested by engine	not reported	not reported
F2H-4	5	Nose fuselage access door fastener passed through port engine	postflight inspection	port
F2H-4	6	7/16" nut suspected blown into engine by other aircraft	flight deck runup	starboard
F2H-3	1	Duct door bracket came loose; nuts, bolts were ingested	turnup or takeoff	starboard
F2H-3	2	Unknown foreign object passed through engine	final stage of cat shot	port
F2H-3	3	Unknown foreign object (believed to be small bolt)	postflight inspection	starboard
F2H-3	4	Port bridleman drawn into port intake		port
F2H-3	5	Unknown object passed through engine	preflight inspection	port
F2H-3	6	Burner basket came loose, passed through turbine	preflight inspection	port
F2H-3	7	Sea gull ingested	takeoff	port
F2H-3	8	Plane captain wearing raingear hood drawn into instake	flight line turnup	not reported
F2H-3	9	Screw sheared in air duct butterfly	in flight	starboard
F2H-2	1	Port generator blast tube cover not removed prior to start	preflight	port
F2H-2	2	Maintenance man drawn into intake during fuel integrity check	post-maint turnup	port
F2H-2	3	Lineman drawn into intake; also articles from man's pockets	engine shutdown	starboard
F2H-2P	4	Unsecured helmet, phones, goggles drawn off bridleman	catapult turnup	port
F2H-2P	5	Engine compartment duct cover handle drawn into engine	in flight	not reported
F2H-2P	6	Port bridleman drawn into port intake	catapult turnup	port
F2H-2P	7	Port bridleman drawn into port intake	catapult turnup	port
F3H-2N	1	Small bolt entered after 10-15 minutes at idle rpm	turnup	starboard
F3H-2N	2	Port inlet duct cover drawn in during turnup	post-maint turnup	port
F3H-2N	3	Starboard engine ducting left unsecured after X	post-maint turnup	starboard
F11F	1	Crewman drawn into intake (fatal)	ground turnup	port
F8U	1	Duct screen chaffing hose drawn into engine; improper instal.	maintenance turnup	
A4D	1	Foreign object about size of 1/4" bolt	landing	
A4D	2	Bird drawn into intake duct	in flight	
A4D	3	Bird drawn into intake duct	in flight	
A4D	4	Bird drawn into intake duct	in flight	
A4D	5	Loose intake duct seal; metal fastener drawn into engine	preflight	
A4D	6	Damage to compressor by unknown type foreign object	not reported	
A3D	1	Seagulls ingested into both engines	landing approach	port and starboard
A3D	2	Unsecured helmet, flight deck, pulled off crewman	flight deck turnup	port
F4D	1	Ground seat safety pins drawn from pocket of plane captain	preflight turnup	
F4D	2	Small rock or nut damaged first 3 stages of compressor	2nd interim inspection	
F4D	3	Ingested bird on landing approach	landing approach	
F3D-2	1	Electrician, with multimeter and inspection light	maint turnup	not reported
F3D-1M	2	Pyrometer leads sucked into intake	maint turnup	not reported
F3D-2	3	8/32" screw (believed blown into duct by other aircraft)	post-maint turnup	
F3D-2	4	Pliers left in intake	post-engine installation	port
F3D-2	5	Duct cover foreign objects (tacks) drawn into engine	line trouble-shooting	
F3D-2	6	Center punch left in intake duct during starter installation	post-maint turnup	starboard
F3D-2T	7	Screwdriver blade left in engine during maintenance	takeoff roll	starboard

NOTE: No FLIGAs, reporting FOD, were received concerning F9F-5, -6, -8 or TV-2.

FROM THE GROUND UP

SELECTED FORCED LANDINGS, GROUND ACCIDENTS, NOTES AND COMMENTS ON AIRCRAFT MAINTENANCE.

Hole gouged in P5M hull was caused by plane drifting over beaching gear when line parted.

LINE LIFE—During the launching of a P5M-2 and prior to casting off the "king buoy," the starboard out-haul handling line parted. Because of the 25-knot southeast wind, the aircraft started to drift rapidly to port towards the ramp. The PC gave the order to cast off the tail and bow lines. The port beaching gear had been cast off but had not had time to clear the aircraft drifting down upon it. The beaching gear disappeared under the port side.

When the starboard out-haul line parted, the aircraft began to drift rapidly. The beaching gear became lodged under the airplane and gouged a hole in the hull.

Recommendations included all aircraft handling lines be inspected daily. These should be changed every four weeks instead of eight as was done previously, if there is any doubt as to their serviceability. All buoy fittings should be inspected weekly.

FROM THE GROUND UP–

continued

AIRCRAFT FUELING AND STATIC ELECTRICITY—Static electricity, which is the source of static sparks, is a constant threat to safe fueling. When two dissimilar materials make physical contact and then are separated, a charge of static electricity is nearly always produced. This occurs when one scuffs across a heavily carpeted floor. A static charge is built up in the body by the shoes making and breaking contact with the carpet. It is usually discharged harmlessly as a spark from the fingers, just before they touch some object such as a door knob.

The presence of static electricity is not easily apparent until a discharge or spark occurs.

This increases the danger during fueling. Static electricity can be generated by fuel flowing through the hose or even by fuel falling freely through the air, as when a tank or line is drained into a barrel. It may accumulate on an aircraft when in flight or on the ground. Particles of rain or snow or ice crystals or dust blowing across the aircraft can produce a very heavy charge of static electricity. The servicing truck, like any rubber tired vehicle, may become electrified. Static can also be collected by induction from electrically charged atmosphere.

Static electricity flows like water to points of lower pressure (lower potential). If, in an airplane, all the individual metallic structures are "bonded" or connected electrically, the flow will continue until the potentials are equal. Electricity flows along the easiest path, just as lightning follows the highly conductive copper lightning rod and cable into the ground. If no easy path is provided, the charge builds up. Then, when the charge is great enough or when the distance to the point of lower potential or to the ground is sufficiently reduced (*as when the fingers approach the door knob or the hose nozzle nears the wing*) the charge jumps the gap as a static spark. Under favorable circumstances this static spark is as capable of igniting flammable vapors as is the discharge across the points of a spark plug.

It is impossible to prevent the presence of flammable vapors in the areas adjacent to fuel tank filler openings. Therefore, it is essential that the static that accumulates on the aircraft or the truck is not permitted to discharge as a spark. This can be accomplished first, by providing an easy path for it to follow, a "ground" and then by "bonding" the truck and the hose nozzle to the aircraft. Proper ground will drain off the static charges. Proper bonding will equalize the potentials. If both are accomplished, no spark will result. A drag chain on the tank truck does not constitute an adequate ground.

Grounding and bonding connections, if made before fueling, will safely dissipate whatever static electricity has been built up in the aircraft and the truck.—*Excerpt from "AIRCRAFT FUELING" by Flight Safety Foundation, Inc.*

ENGINE PREOILER CONTAMINATION—A preoiler, Model No. 6521-B, (Standard Stock No. RN40-P-1199-885N), was received recently with the paint peeling from the inside of the tank. A test was conducted to determine whether the strainer would stop the paint. The paint passed through the strainer.

Recommendations: As soon as possible, inspect all preoilers for evidence of peeling paint on internal surfaces of the tank. If the tank shows signs of paint peeling from the internal surfaces remove all paint from the internal surface of the tank.

At least once each month, the filter and tank shall be cleaned and inspected and a record of inspection attached to the preoiler.

HEATER MUFF WELD INSPECTION—While on a cross-country flight to Birmingham, Ala. the pilot of an AD-6 noted symptoms of carbon-monoxide poisoning. He put on his oxygen mask and returned to McDill AFB. The pilot suffered from severe headaches, loss of peripherial vision and indifference to the hazard of flight. His judgment at times was sound as evidenced by the fact he returned to a base which had good crash facilities and declared an emergency; however, at times he indicated he cared little whether he crashed or landed. A CO test was administered at McDill AFB and the results indicated severe CO poisoning.

Suspected cause: Welds cracked on both ends of the cockpit heater muff (No. R28DG-5258899-214). The cracked welds were not discovered on normal inspections. The cracks were extremely

difficult to detect with the naked eye and the cracks became evident only when the exhaust manifold was water tested.

Corrective action: (1) Close inspection on all checks for any signs of cracks in the exhaust manifold and heater muff. (2) Frequent CO tests on all aircraft.

AMEN!!

Subj: FLIGA; submission of

1. Forwarded.
2. It is noted that this is the second time in four days that a ground vehicle has damaged an aircraft in this squadron. Enough said!

OXYGEN SYSTEM SEALS—A recent report notes that the liquid oxygen gage probe seal leaked causing malfunction of an F9F-8T liquid oxygen quantity gage. The introduction of water vapors was listed as the cause for the gage malfunction. It was stated that repair cement was applied to both sides of the probe gasket to insure a proper seal.

BuAer notes the use of repair cements in aircraft oxygen systems is extremely dangerous inasmuch as toxic and/or odoriferous material may be introduced into the oxygen supply.

Accordingly, all activities were advised that under no circumstances shall repair cements or other such materials, except those specifically approved for oxygen systems, be used in the repair or maintenance of aircraft oxygen systems.

SAFETY IN AVIATION is no accident. It is the result of cooperative effort on the part of all those concerned with airplanes.

Probably the man who can shoot down the program the fastest is the mechanic who is supposed to maintain the airplane and doesn't do it properly. If you don't know how to find out the right way, someone over you does, or can find out. See the NCO or PO over you or, go to your technical library and find out.

It is vitally important that each malfunction of an aircraft or equipment be reported, analyzed and corrected before the next flight is attempted. The cause of each malfunction must be fully determined and corrected. Faults do not correct themselves through ground turnup. To merely eliminate the symptom does not necessarily correct the trouble and all too often leads to a later accident.

To write "Next Pilot Check" on a yellowsheet as a means of writing off the gripe is no correction and the hallmark of a lazy mechanic.

Maybe you can't repeal it but you should do everything in your power to prevent running afoul of Murphy's Law.

Attend the technical training lectures and demonstrations scheduled by your maintenance department.—*1st MAW. Wing Tips on Safety.*

"Say, did you see that Murphy in October's APPROACH about crossing the airspeed and altimeter lines?"

"Ya, Butch—reckon we ought to tell 'em about . . . ."

Please do, please do—Approach and NASC want to help you and the men at the design board—but ya gotta tell us!—Ed

MURPHY'S LAW*

ON TURN-UP AFTER CHECK A TV-2 HAD A HIGH FUEL PRESSURE READING. THE REASON FOR THIS DISCREPANCY WAS THAT A CHECK CREWMEMBER HAD CROSS-CONNECTED THE CANNON PLUGS OF THE OIL PRESSURE AND THE FUEL PRESSURE GAGES. THE REVERSED CONNECTIONS CAUSED THE GAGES TO GIVE READINGS IN DIRECT PROPORTION TO THE SIGNAL TRANSMITTED BY THE TRANSMITTERS.

TROUBLESHOOTERS ATTEMPTED TO CHECK THE PRESSURE OUTPUT OF THE FUEL PUMP BY ATTACHING AN AUXILIARY FUEL GAGE. THE CONNECTION WAS TO HAVE BEEN MADE AT THE JUNCTION OF THE HIGH PRESSURE FUEL LINE AND THE FUEL PRESSURE SENSING SWITCH. HOWEVER, THE AUX GAGE WAS ATTACHED TO THE FUEL PRESSURE SENSING SWITCH ONLY, LEAVING THE HIGH PRESSURE FUEL LINE FREE TO SPRAY RAW FUEL INTO THE COMPRESSION CHAMBERS AREA. ON THE TURN-UP WHICH FOLLOWED, AN EXPLOSION AND FIRE DAMAGED THE AIRCRAFT (ABOVE). THIS ACCIDENT POINTS OUT AGAIN THAT INTERCHANGEABLE FEATURES MAY OFTEN CAUSE ACCIDENTS. IN THIS CASE THE ORIGINAL PROBLEM RESULTED WHEN TWO IDENTICAL CANNON PLUGS WERE REVERSED. TO PREVENT A RECURRENCE OF THIS PROBLEM THE REPORTING UNIT PAINTED ALL OIL TRANSMITTER CANNON PLUGS YELLOW AND FUEL TRANSMITTER CANNON PLUGS RED. CORRESPONDING COLOR STRIPES WERE ALSO PAINTED ON THE TRANSMITTER BRACKET. INCIDENTALLY, A BETTER AND QUICKER METHOD OF TROUBLESHOOTING WOULD BE TO CHECK THE PRESSURE AT THE FUEL PRESSURE TRANSMITTER. THIS WOULD INDICATE EITHER AN ELECTRICAL OR FUEL CONTROL PROBLEM.

*If an aircraft part can be installed incorrectly, someone will install it that way!

Tip-Tank

MISCELLANEOUS AVIATION SAFETY TIPS . . .

DISPOSITION OF AUTOMATIC CHUTE OPENERS

EVERY automatic parachute opener which is used *or involved* in an accident is to be sent to the Naval Parachute Unit, El Centro, California, for inspection, testing and evaluation.

NPU wants the parachute complete with opener. (Ref: NavAer 13.2 of 26 Jul 54.)

LOW LEVEL NAVIGATION FLIGHTS

THE FREQUENCY of accidents in this area of flight continually causes concern. Because a number of hazards exist whenever low flight is conducted, flight planning must be as meticulous as possible to avoid them.

For example, there are abrupt changes in terrain to be anticipated and avoided, invisible hazards such as power lines, the possibility of exhausting fuel from one tank when not prepared for it, and others.

Additionally, the mere fact that flight is at low level means that a pilot must be far more alert simply to prevent the plane from drifting down the last few feet into the water or ground if his attention should be diverted to duties within the cockpit.

The necessity for planning has shown up in recent accidents . . . "Informal" low level flights performed on the spur of the moment resulted in disaster because hazards not appearing on standard aeronautical charts were encountered. Such charts *do not* aim to depict all such hazards—in fact the available room on the paper prevents this. All they are designed to do is to show prominences and features of civilization which can be useful for *navigation*, presumably for aircraft proceeding at LEAST 500 feet above the terrain.—*NavAir Pac Notice*

SPECIAL RECOGNITION!

Units which have compiled long standing records of accident-free operations are deserving of high commendation.

The Naval Aviation Safety Center recognizes the following:

Naval Air Technical Training Unit, NAS Olathe, Kansas . . .
- 44 months since the last accident
- more than 35,000 accident-free flight hours
- operating an average of 13 SNB aircraft

Marine Corps Air Station, Miami,
- 42 months since the last accident
- more than 14,500 accident-free flight hours
- operating an average of 8 aircraft

Other units are invited to submit their records for consideration for publication.

SUGGESTED RADIO PROCEDURES

RECENT EFFORTS to analyze the pandemonium prevailing on the air-to-ground circuits leads me to the opinion that an appreciable percentage of the congestion is caused by neglect of some basic principles of good radio procedures, such as:

(1) Listen before talking; don't break in.

(2) Include all necessary dope in each message so additions are not necessary.

(3) Omit all excess words.

(4) Form habit of planning for brevity on every contact.

Many controllers tell us the same things several times (e.g. a clearance or portion thereof, or request for report of an altitude or fix.) Perhaps we can find opportunities to point this out to them. Improvement by both parties might cut down circuit wordage by 30 percent or more.—ALPA #57-9

HOW TO PREVENT WHEELS-UP LANDINGS

1. DO consult the checkoff list every time.

2. DO check the wheels down after actuating the lever.

3. DO remember that if any distraction occurs in the landing pattern, that you are likely to forget to lower the gear.

4. DO check out wheels watches thoroughly, including in their instructions the significance of approach lights and any other features which they must recognize in models of aircraft landing on that particular field.

5. DO remember that you are more likely to forget at NIGHT—not because its dark but because piloting is more demanding and the mental burden is greater.

6. DO remember that *no* one is so experienced that the above remarks do not apply to HIM!—*NavAirPac Notice*

After a spell of freezing rain, one pilot reported: "Braking action was nil, but very good in the snow off the end of the runway."

LETTERS

Approach welcomes letters from its readers. Send yours either . . . via official channels or direct on Anymouse forms. All letters should be signed. However, names will be withheld on request.
Address: Approach Editor, U. S. Naval Aviation Safety Center, NAS Norfolk 11, Virginia.

NO SNOW

Sir:

Your article on Compressor Stalls [Nov.] APPROACH is very straightforward and concise and should be appreciated by pilots who are too often subjected to explanatory "snow jobs" by people who talk a slightly different language.

As a matter of fact, I think WAD might consider incorporating some of your steps on avoiding and getting out of stalls in future Operating Instructions.

H. N. ARTHUR,
Proj. Engr.
Curtiss-Wright Corporation

FRIEND OR FOE

Sir:

Several events have come to mind over the past year which singularly are not nearly as significant as cumulatively.

First was the AD-5N pilot who went into the water because of a torque roll on a bolter. He survived the 70-degree angle water crash perfectly (because of tight lapbelt and shoulder harness) only to have his neck wrenched by the enthusiastic crew of the plane-guard destroyer while pulling him out of the water *by his helmet.*

Second was the FJ-3 pilot who leveled his plane successfully after a stall at the ramp and made one of the few successful water landings in an FJ. The helicopter almost failed to pick him up because the sling reel jammed. *Check those hoist mechanisms every flight.*

Last but not least was the A4D that went in off the canted lip after its tailhook tore out when the crossdeck pendant constant feed-out failed. The pilot successfully exited the aircraft and entered the sling only to be struck on the head by the sling ball weight when the hoist cable parted, resulting in dog paddle swimming until the destroyer plane-guard rescued him. It might be stated that his neck was not wrenched. To wit: It is not always dangerous "coming aboard a can."

Once again, helicopter crews, check those hoists and lines!

FLIGHT SURGEON

YOKE LIFE

Sir:

Enclosed is a photograph showing excessive wear on the securing holes of the yoke of the A13A type oxygen mask.

In this particular case the yoke was so worn that it parted as the pilot was tightening the mask to his helmet. The wear was caused by the sharp, straight edges of the strap clips which facilitate tightening of the mask. We inspected all our yokes, and 10 out of 20 required a replacement.

Although not all cases were considered to be of the SAFETY OF FLIGHT type, it was apparent that they *would* be in an undetermined amount of time. This wear, I believe, unnecessarily shortens the life expectancy of the yoke to considerably less than that of the mask itself. The discrepancy was reported by FUR. A clip which conformed to the shape of the yoke holes rather than one which provided the undesirable cutting edge was recommended.

W. F. SHERWOOD,
LTJG, VF-173 ASO

CHANNEL VISION

Sir:

Two acceptable ways to avoid "graveyard spirals" induced from the pilot becoming distracted from instrument scan to change frequencies are as follows (a group effort of VF–73 pilots):

(a) Short range solution is to move the channel selector dial and channel number indicator from the starboard console to the top of the anti-glare shield above the instrument panel. Some people will argue that this will limit vision but personal opinions here are that it won't (See the installation in an F–86D to see what I mean).

(b) Long range solution is to have a channel selector actuated by heel pressure, similar to auto radio installations, and have an "eyeball" channel number indicator on the instrument panel.

LT B. K. THOMAS, JR.
Safety Officer

Sounds good, B. K. What do our readers think?—Ed.

Sir:

In reference to "VOR Airway Separation Criteria" (page 44, August), we at NAS Hutchinson control tower, object. As specified in the ANC procedures for the control of air traffic, course separation must be 30 degrees within 15 miles of a VOR station giving a lateral separation at this point of eight miles.

N. R. NUZZI, ACC
L. K. RICE, AC1

The item you reference was from the Airline Pilot Association "Technical Talk for Pilots" and the mixup seems to come from your interpretation of it. Rather than modifying the rules, the item meant that pilot must arrive at the 15 mile distance from the facility as nearly on course as possible due to the four-mile separation at that point.
—Ed.

OLD PRO CLUB

LTJG Ronald L. STODDART, USN

Aircraft: F7U-3M, VA-116

Approaching the break for a carrier landing, LTJG STODDART experienced a seizure of the starboard engine. After burning down to single engine approach weight, a mirror approach was made using afterburner power on the port engine and controlling speed and rate of descent with speed brakes. LTJG STODDART made a safe landing; the engine seizure was the result of loss of all engine oil.

LTJG W. F. HAMPTON

Aircraft: F3H-2N, VF-14

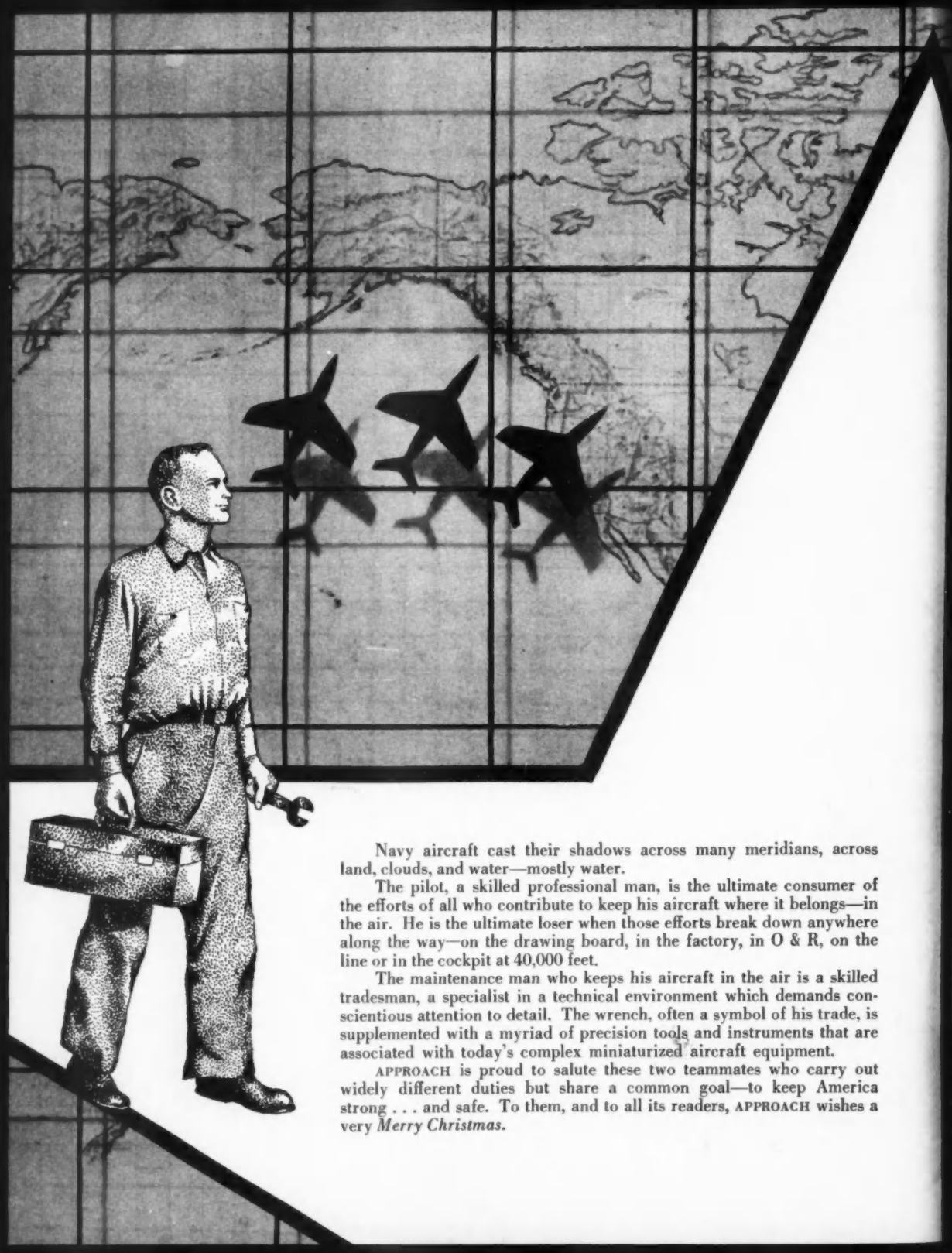
LTJG HAMPTON was given a military power catapult shot which was 100 psi under anticipated launching pressure for the steam catapult. The resultant end speed was 3 knots above the minimum required for aircraft weight. LTJG HAMPTON, using good judgment and quick action, rotated as necessary to keep settling to a minimum and lighted the after-burner to provide additional thrust required to safely recover from the precarious position.

1st LT James B. MACKENZIE, USMCR

Aircraft: FJ-4, VMF-451

Towing a banner at 22,000 feet, 1st LT MACKENZIE attempted a turn and discovered that the ailerons were locked in the neutral position. He immediately jettisoned the tow, and with rudder, reversed course towards home base. All emergency procedures failed to free the ailerons. Descending to a lower altitude, the aircraft was tested for slow flight characteristics, using rudder for directional control and alignment. Finding control effective but marginal, LT MACKENZIE determined that he could safely land the plane. His skill in saving the FJ-4 enabled maintenance personnel to isolate the trouble as water (due to rain seepage) frozen around the mechanical linkage of the flight control system, preventing operation of the hydraulic aileron actuators. Corrective action has been taken to prevent future occurrences of this type.

Recognition of heads-up flying is essential to a positive program of flight safety. From time to time, Approach acknowledges individuals whose exhibited flying ability merits membership. Old Pro's also receive a wallet membership card as a memento of the occasion. Commanding officers are invited to submit nominations for selection.



Navy aircraft cast their shadows across many meridians, across land, clouds, and water—mostly water.

The pilot, a skilled professional man, is the ultimate consumer of the efforts of all who contribute to keep his aircraft where it belongs—in the air. He is the ultimate loser when those efforts break down anywhere along the way—on the drawing board, in the factory, in O & R, on the line or in the cockpit at 40,000 feet.

The maintenance man who keeps his aircraft in the air is a skilled tradesman, a specialist in a technical environment which demands conscientious attention to detail. The wrench, often a symbol of his trade, is supplemented with a myriad of precision tools and instruments that are associated with today's complex miniaturized aircraft equipment.

APPROACH is proud to salute these two teammates who carry out widely different duties but share a common goal—to keep America strong . . . and safe. To them, and to all its readers, APPROACH wishes a very *Merry Christmas.*